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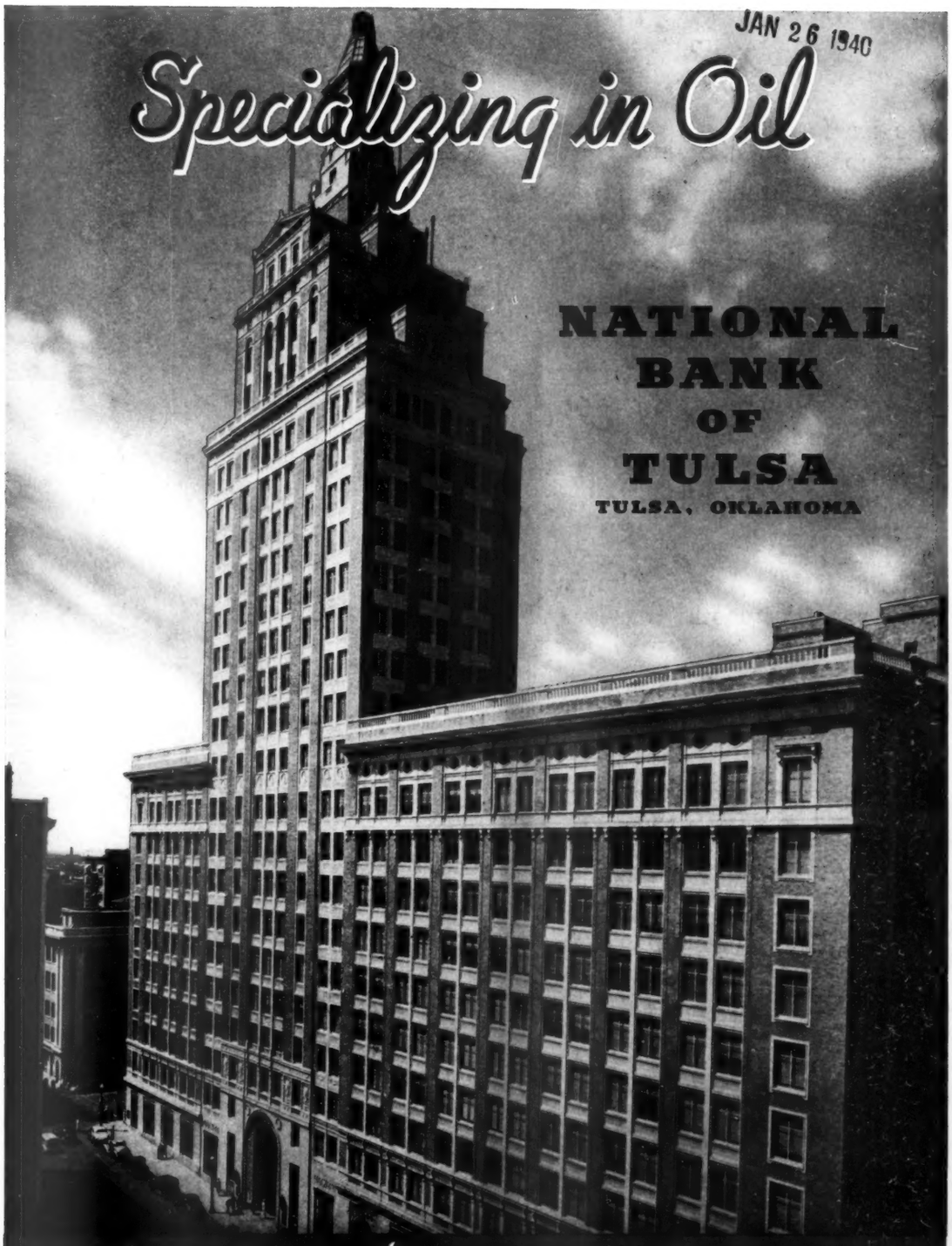

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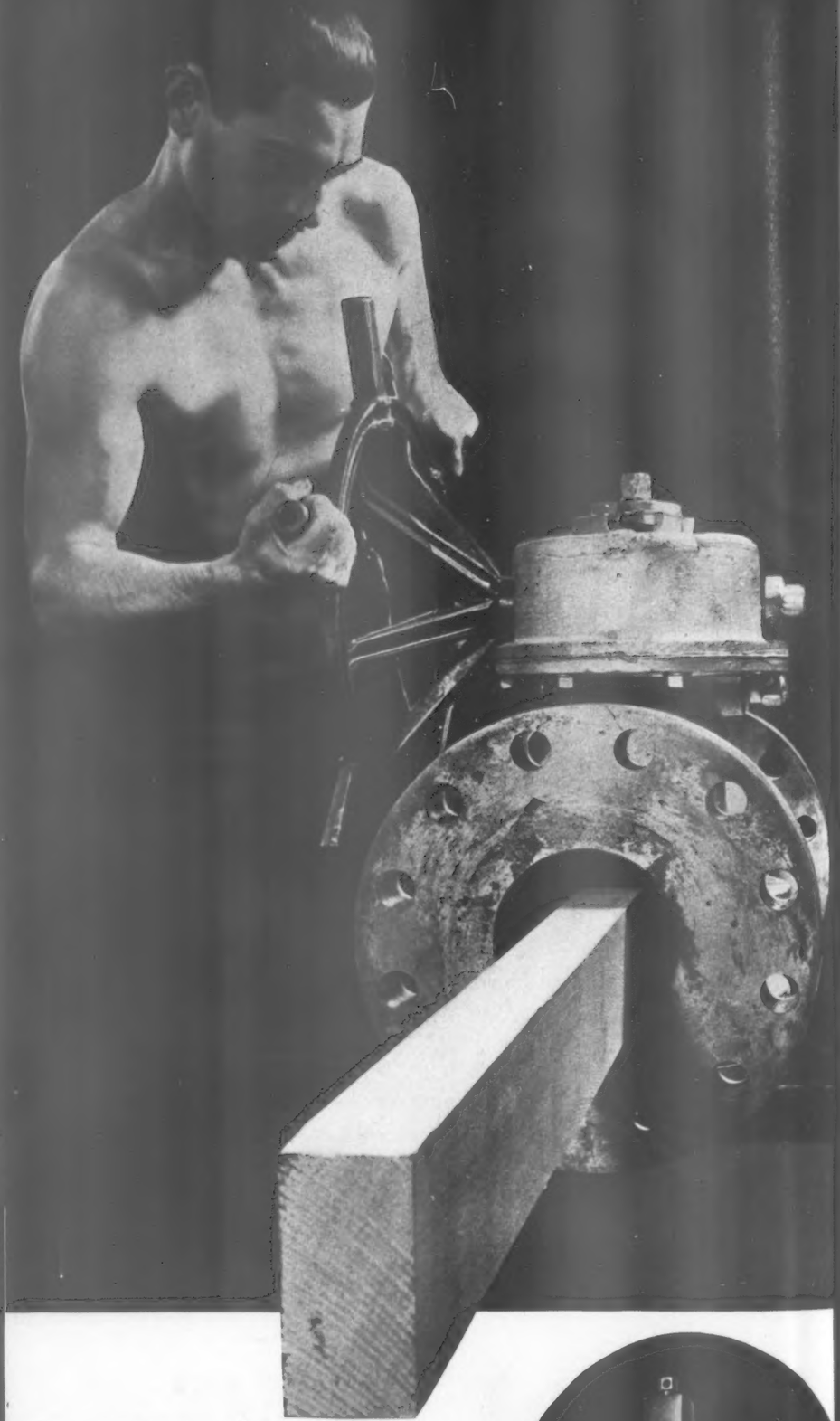

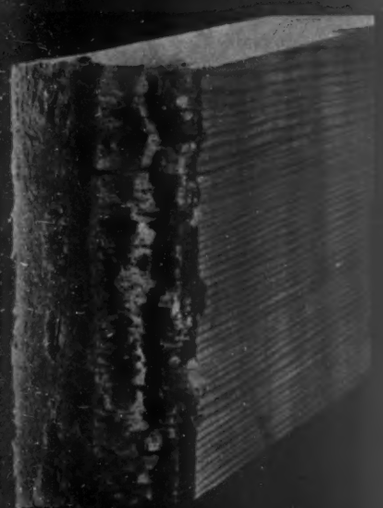

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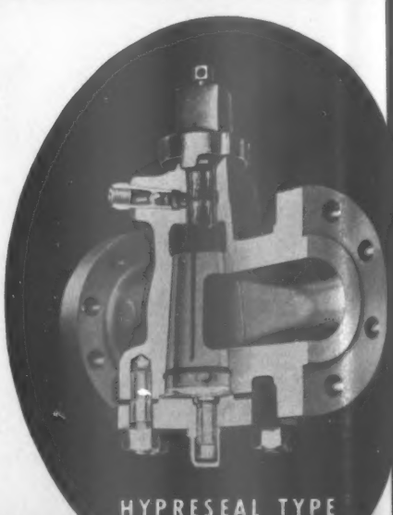

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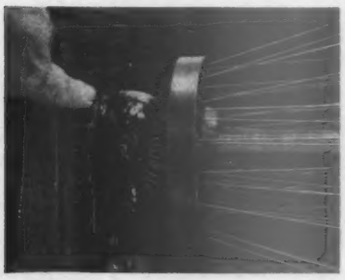

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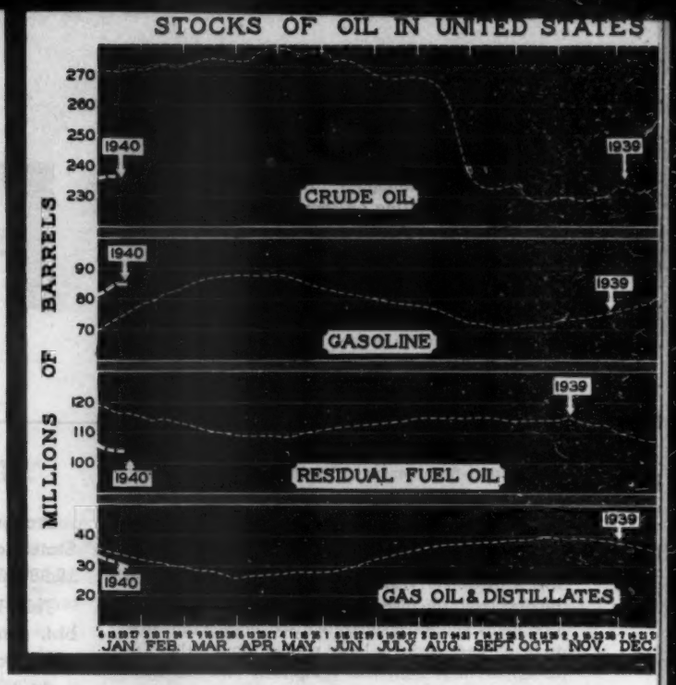
Trends

Gasoline Inventory Becomes Controlling Guide in Operations



THE necessity of reducing crude-producing and refinery operations over the next 60 to 90 days in order to bring supply in line with current demand and at the same time correct the gasoline inventory situation brought about by excessive operations in recent months is receiving more and more attention within the industry. Sagging gasoline prices which, it is conceded, will affect the present tightness of the crude market if the trend continues through the first quarter, furnish an ever-present incentive for these discussions, which aim to place the industry on a more profitable basis in 1940 than was the case in 1939 and 1938.

CRUDE PRODUCTION *3,644,592 bbl. daily average—up 71,210 bbl. One year ago 3,270,691 bbl.*

CRUDE STOCKS *238,249,000 bbl. as of January 13 — down 332,000 bbl. One year ago 271,819,000 bbl.*

GASOLINE STOCKS *85,880,000 bbl. as of January 20—up 1,554,000 bbl. One year ago 76,452,000 bbl.*

RESIDUAL FUEL-OIL STOCKS *104,582,000 bbl. as of January 20 — down 130,000. One year ago 116,985,000 bbl.*

GAS OIL AND DISTILLATES *28,888,000 bbl. as of January 20—down 1,438,000. One year ago 33,819,000 bbl.*

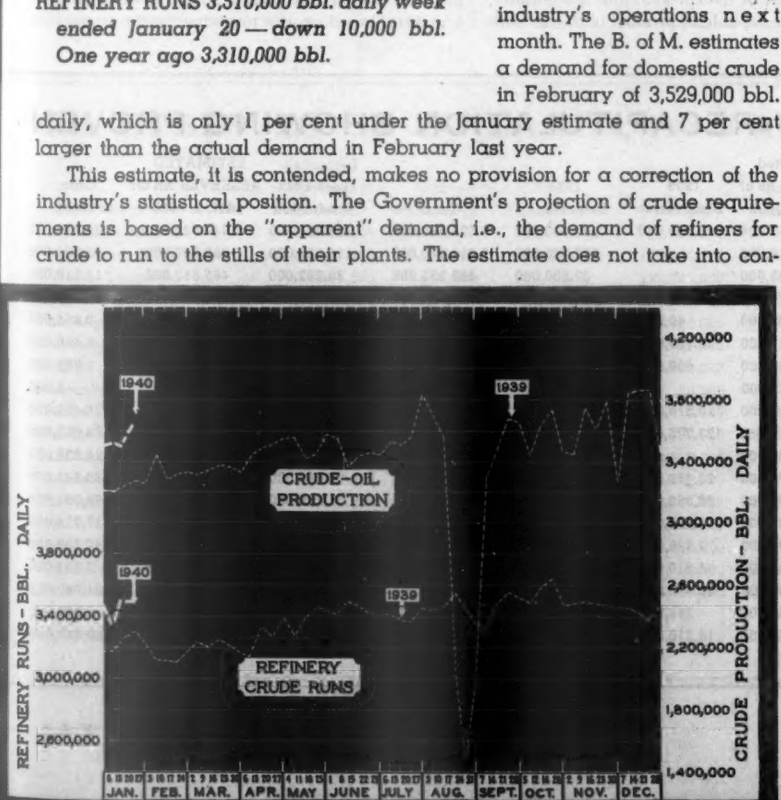
REFINERY RUNS *3,510,000 bbl. daily week ended January 20 — down 10,000 bbl. One year ago 3,310,000 bbl.*

In this connection it is pointed out that the Bureau of Mines projection of crude-oil and refinery requirements for February should not be accepted as a guide for the industry's operations next month. The B. of M. estimates a demand for domestic crude in February of 3,529,000 bbl. daily, which is only 1 per cent under the January estimate and 7 per cent larger than the actual demand in February last year.

This estimate, it is contended, makes no provision for a correction of the industry's statistical position. The Government's projection of crude requirements is based on the "apparent" demand, i.e., the demand of refiners for crude to run to the stills of their plants. The estimate does not take into consideration that these runs may be excessive as measured by actual requirements for finished products, nor do the recommendations seek to reduce burdensome stocks. For example, the bureau's estimate for February assumes that 6,800,000 bbl. will be added to gasoline stocks, resulting in an estimated total of 96,000,000 bbl. at the end of the month. If this plan of operation is carried out, gasoline stocks will be in excess of 100,000,000 bbl. on April 1. It is agreed they should not exceed 85,000,000 bbl.

Many are urging that both the crude-producing and refinery operations in February be reduced from the January levels from 200,000 to 300,000 bbl. daily. This program is met with the usual objection that under that plan refiners would not be able to supply the midwinter demand for overhead and residual products consumed as fuel. The answer of the economist is that there are sufficient stocks of these oils on hand to supply the demand with a smaller current output, provided the inventories are moved to the points where they are needed. They also feel that it would be better to sacrifice part of these low-priced fuel markets rather than build up gasoline inventories.

There has been no improvement in the gasoline market which is governed by the conditions under discussion. The situation is particularly critical in the Gulf Coast area, where the export and coastwise movement of gasoline continues disappointing and quotations are lower.



DAILY AVERAGE PRODUCTION FOR WEEK

	Jan. 20, 1940	Bur. Mines Jan. est. of demand	Jan. state allowables	Jan. 13, 1940
Oklahoma City	103,000	.....	.....	102,105
Seminole fields	39,400	.....	.....	39,300
Remainder of state	281,025	.....	.....	281,770
Total Oklahoma	423,425	433,900	433,900	423,175
East Texas	394,495	.....	.....	394,403
West Texas	242,547	.....	.....	242,392
North Central Texas	112,390	.....	.....	111,100
Texas Panhandle	80,486	.....	.....	79,590
East Central Texas	81,209	.....	.....	83,795
Gulf Coast Texas	353,419	.....	.....	346,307
Southwest Texas	93,082	.....	.....	92,548
Total Texas	1,357,628	1,411,000	1,376,320	1,350,135
North Louisiana	69,325	.....	.....	68,720
Gulf Coast Louisiana	201,400	.....	.....	198,649
Total Louisiana	270,725	254,200	268,192	267,369
California	618,250	593,900	599,000	612,750
Kansas	176,650	160,600	160,000	167,500
Mississippi	3,200	.....	.....	3,000
Arkansas	70,720	59,700	70,000	69,580
Eastern fields	101,000	100,700	.....	102,050
Illinois	366,931	314,800	.....	335,741
Michigan	64,623	61,000	.....	65,382
New Mexico	101,720	101,900	101,900	101,700
Rocky Mountain area	89,720	78,000	.....	75,000
Total United States	3,644,592	3,569,700	.....	3,573,382

PROVEN

ESTIMATED proven oil reserves of the United States as of January 1, 1940, totaled 19,687,379,000 bbl., representing an increase of 1,455,604,000 bbl. for the past year.

California, West Texas, coastal Texas and Louisiana, Illinois and Arkansas (Table 1), all made substantial increases in reserves, while Nebraska and Mississippi entered the ranks of producing states, although the proven area in each state is as yet small. Discoveries failed to keep up with production in several areas, of which trend Oklahoma, eastern Texas, North Louisiana, Montana and the eastern states are important examples.

Extensions to old and new fields far outdistanced new discoveries reflecting the fact that new fields are less rapidly drilled up than in former years. The area proven during the discovery year thus tends to be relatively small, but each area of this kind presents a potential large addition during subsequent years as development is pushed farther from the discovery. Experience has shown that many supposed separate discoveries will prove to be parts of a single large pool, although there is no apparent fear of a development such as East Texas was in 1931.

Both the Los Angeles Basin and the San Joaquin Valley registered large increases of 177,500,000 and 240,000,000 bbl. respectively, through extensions and the discovery of new sands. Extensions in both West Texas and Texas Gulf Coast passed the 300,000,000 bbl. mark. A 150,000,000-bbl. increase in the reserves of the Magnolia field restored Arkansas to a prominent place in the reserve column and new sands and extensions to the Salem and Louden fields raised Illinois to seventh place in order of reserves.

Three Classes

In Table 2, the reserves of the various states and districts have been divided into three categories. The first class consists of those fields which are only partially developed because of recent discovery, insufficient markets, or both. In fields of this kind, the area is not accurately known and the expected yield per acre-foot can be determined only by comparison with older fields producing from the same horizons. Estimates of fields falling in this class are only approximations and are subject to considerable revision. The proportion of estimated reserves in extensions as compared with new fields indicates that this revision tends to be upward rather than downward, although there may be numerous disappointments.

From a practical standpoint, the districts showing a high proportion of fields in Class 1 represent the areas of major drilling activity and possible threats to the price structure if development gets out of hand. They are also the main areas of exploration as they represent recent successful wildcatting which acts as a powerful magnet on other operators.

Fields in Class 2 are those which are, at least, outlined and are either on proration or have a relatively high rate of production. Whether a field is placed in this category or in Class 1 is often a matter of opinion. A field with several sands may have some in each class but if the producing area has been fairly accurately determined, the whole field is placed in Class 2. Estimated reserves of fields in this class are determined on a basis of expected yield per acre-foot. The great bulk of the country's reserves are in fields of this type and, although there will be many individual revisions, it is believed that the total of 11,980,037,000 bbl. will not be greatly altered.

Generally speaking, fields in this class do not constitute a threat of overproduction. Potentially, however, they are capable of producing much more oil than they do should conservation and proration restrictions ever be lifted.

The third group of fields, those on settled production, consists of fields for which a decline curve can be constructed. Instead of making individual decline curves on each field, all of the fields in this class in a given district were combined into a family curve. These settled fields are not all strippers and there is great activity in many of them. Moreover, new production methods are being adopted which tends to slow down or even reverse the decline in individual areas. The family curve takes both of these facts into consideration and assumes that in a district as a whole, development will continue in the immediate future as it has in the immediate past. In the great majority of cases, these old fields hang on longer than is expected so that these reserves will probably be revised upward in the future. The reserve of 3,602,956,000 bbl. for this third class is the reserve which will probably be recovered by present methods—not the potential reserve that may be recovered by new methods.

Considering the country as a whole, the output to be expected from these settled fields during 1940 is about one-ninth of their reserve. This is approximately one-third of the expected total production from all fields. The extent to which production control is needed is shown by the fact that fields representing 80 per cent of the total reserves, plus new discoveries and extensions, will only produce about 70 per cent of next year's crude supply in spite of their much greater potentialities.

Years' Supply

In order to appreciate the value of the reserve tables, reference should also be made to the last four columns of Table 2, which show the number of years' supply in each state or district in 1939 and 1940, based on the previous year's production

NEARS 20 BILLION

Proven oil reserves of the United States as of January 1, 1940, totaled 19,687,379,000 bbl.

This is an increase of 1,455,604,000 bbl. during the year after deducting 1939 production of 1,255,783,000 bbl.

Of the 2,710,388,000-bbl. new reserve discovered in 1939, Texas had 1,070,145,000 bbl., or 39.5 per cent; California, 500,500,000 bbl., or 18.5 per cent, and Illinois, 429,070,000 bbl., or 15.8 per cent, with the remainder scattered among several states.

Texas led with 54.8 per cent of the country's reserves, or 10,794,055,000 bbl.; California, second with 3,447,622,000 bbl., or 17.6 per cent, and Oklahoma, third, with 1,287,906,000 bbl., or 6.5 per cent.

TABLE 1--RECAPITULATION SHOWING PROVEN

State, district—	Estimated reserves as of Jan. 1, 1939	1939 Discoveries	1939 Extensions	Total	Less 1939 production	ESTIMATED RESERVES AS OF JAN. 1, 1940	Gain or loss (—)
California (total)	3,171,450,000	45,500,000	455,000,000	3,671,950,000	224,328,000	3,447,622,000	276,172,000
Los Angeles Basin	836,640,000	.....	177,500,000	1,014,140,000	114,291,000	899,849,000	63,309,000
Coastal	454,635,000	.....	37,500,000	492,135,000	26,282,000	465,853,000	11,218,000
San Joaquin Valley	1,880,175,000	45,500,000	240,000,000	2,165,675,000	93,755,000	2,081,920,000	201,645,000
Montana	92,092,000	40,000	1,920,000	94,052,000	5,854,000	88,198,000	—3,894,000
Wyoming	273,441,000	18,700,000	7,200,000	299,341,000	21,280,000	278,061,000	4,620,000
Colorado	20,766,000	800,000	1,600,000	23,166,000	1,401,000	21,765,000	999,000
Utah	20,000	.....	.....	20,000	2,000	18,000	—2,000
New Mexico	674,513,000	20,970,000	46,100,000	741,583,000	37,668,000	703,915,000	29,402,000
Texas (total)	10,209,230,000	122,775,000	947,390,000	11,279,395,000	485,340,000	10,794,055,000	584,825,000
Panhandle	748,200,000	.....	.....	748,200,000	24,538,000	723,662,000	—24,538,000
West Texas	2,183,872,000	33,450,000	326,680,000	2,544,082,000	79,469,000	2,464,613,000	280,841,000
North Texas	522,984,000	28,360,000	102,440,000	653,784,000	31,718,000	622,066,000	99,082,000
West Central Texas	122,122,000	5,170,000	22,680,000	149,972,000	10,076,000	139,896,000	17,774,000
East Texas	3,038,890,000	2,120,000	29,880,000	3,070,890,000	178,707,000	2,891,183,000	—147,707,000
Laredo district	230,048,000	5,310,000	23,995,000	259,353,000	26,504,000	232,849,000	2,801,000
Corpus Christi district	782,330,000	33,870,000	96,465,000	912,665,000	45,648,000	867,017,000	84,687,000
San Antonio district	63,060,000	285,000	.....	63,345,000	6,647,000	56,698,000	—6,362,000
Texas Gulf Coast	2,517,824,000	14,210,000	345,270,000	2,877,104,000	79,033,000	2,798,071,000	280,447,000

RESERVES

and also the change in status of each district as compared with the country as a whole. This table shows whether or not production has changed in each area to conform to changes in the reserve figures. Thus, we find that in spite of the great increase in Illinois' reserves, production increased much more rapidly, with the result that the years' supply has dropped from 12.7 to 6.7. In Texas, an increase in reserves of 584,825,000 bbl. was not balanced by increase in production and the state gained 0.5 years' supply. However, relative to the rest of the country, Texas' reserves dropped from 56.1 per cent of the total reserve on January 1, 1939, to 54.8 per cent at the start of this year.

California

The 1939 production of California was 10 per cent less than in 1938. The new reserves were more than double this production. The state thus shows an increase of 2.7 years' supply, based on present production and also a slight gain in its percentage of the nation's reserves.

Rocky Mountain States

Discoveries and extensions in Montana added only about one-third of the state's annual production and an increase in production from 4,834,917 bbl. in 1938 to 5,854,116 bbl. in 1939, resulted in a drop in years' supply from 19.1 to 15.0, or about the average for the country as a whole. In Wyoming, extensions and deeper sands in the Lance Creek field gave the state a small excess of additional reserves which was more than balanced by increases in production. Colorado registered a net increase in reserves but a greater percentage increase in production.

New Mexico almost exactly held its own with a small increase of 29,402,000 bbl. in reserves balancing the effect of an increase in production.

COMPLETE SURVEY

The accompanying report covering proven oil reserves in the United States is the most complete ever published. Throughout the past year, representatives of The Oil and Gas Journal in all parts of the United States have made an entirely new survey of oil reserves in old and new fields.

In checking the older areas it was found that in most cases it was necessary to revise previous estimates upward. This was due to extensions of new producing horizons and new methods of producing crude oil, which have added greatly to the recoverable oil in fields which are from 5 to more than 25 years old.

The new survey was completed in November as of January 1, 1939. Since the start of this year the reserves and extensions of 1939 by fields, which are a part of this report, were added, giving the reserve totals as of January 1, 1940.

W. V. Howard, well-known geologist, who over a period of several years has made a special study of oil reserves, aided in the compilation and analysis of this report.

Texas

Texas gained 584,825,000 bbl. in reserves and registered only a small increase in production, giving the state a net increase in reserves amounting to 0.5 years' supply. Changes within the different districts of Texas show considerable variation. Inactivity in the Panhandle resulted in a lack of discoveries or extensions, so that this area lost an amount equal to its production. The estimate for the Panhandle has not been broken down into various classes of fields because of the fact that production is reported by counties rather than by fields.

Extensions in Ector, Hockley, Gaines, Yoakum and Andrews counties gave West Texas the largest net increase of any district in the country, although the Texas Gulf Coast and the San Joaquin Valley were close on its heels. Eastern Texas lost almost the whole of its production as few important reserves were found in this area.

With the exception of the old San Antonio district, all of the southern districts in Texas show considerable increases in reserves, although the Laredo district's improved position was due mainly to a drop in production. The Gulf Coast of Texas has the largest reserve in relation to the current rate of production, and it is now estimated to contain 37.7 years' supply at the present rate of production.

Louisiana and Arkansas

Although North Louisiana recorded a net loss in reserves almost equal to its 1939 production, this deficiency was more than made up by coastal Louisiana and Arkansas, which ranked next to Illinois in improvement in position relative to the rest of the country.

Oklahoma and Kansas

Oklahoma continued to drop behind in the matter of new reserves, suffering a net loss of 113,724,000 bbl. This was practically balanced by declining production, but the state has dropped from 7.7 per cent of the country's reserves a year ago to 6.5 per cent. Kansas' discoveries added 88,317,000 bbl. to reserves and its position with respect to years' supply has improved.

Eastern Fields

The spectacular increase in activity in Illinois placed the state in second position with regard to increased reserves, with a net increase of 337,273,000 bbl. This is offset to some extent by an increase in production of about 400 per cent, with a result that Illinois entered the year with 12.3 years' supply and closed it with 6.7. However, during the year, the state improved its position with respect to the rest of the United States

OIL RESERVES ON JANUARY 1, 1940 AND 1939

(Data in Barrels)

State, district—	Estimated reserves as of Jan. 1, 1939	1939 Discoveries	1939 Extensions	Total	Less 1939 production	ESTIMATED RESERVES AS OF JAN. 1, 1940	Gain or loss (—)
Louisiana (total)	741,698,000	140,550,000	94,475,000	976,723,000	94,230,000	*882,493,000*	140,795,000
Louisiana Gulf Coast	545,057,000	140,450,000	94,475,000	779,982,000	68,912,000	*711,070,000*	166,013,000
North Louisiana	196,641,000	100,000	.....	196,741,000	25,318,000	*171,423,000*	—25,218,000
Arkansas	174,221,000	7,300,000	150,000,000	331,521,000	21,365,000	*310,156,000*	135,935,000
Mississippi	.....	2,400,000	.....	2,400,000	103,000	*2,297,000*	2,297,000
Oklahoma	1,401,630,000	13,200,000	26,490,000	1,441,320,000	153,414,000	*1,287,906,000*	—113,724,000
Kansas	645,425,000	63,780,000	83,700,000	792,905,000	59,163,000	*733,742,000*	88,317,000
Nebraska	.....	50,000	.....	50,000	1,000	*49,000*	49,000
Illinois	280,255,000	24,909,000	404,161,000	709,325,000	91,797,000	*617,528,000*	337,273,000
Indiana	12,300,000	9,520,000	560,000	22,380,000	1,436,000	*20,944,000*	8,644,000
Kentucky	60,660,000	960,000	.....	61,620,000	5,622,000	*55,998,000*	—4,662,000
Tennessee	500,000	.....	.....	500,000	50,000	*450,000*	—50,000
Michigan	61,593,000	15,440,000	4,898,000	81,931,000	23,566,000	*58,365,000*	—3,228,000
Ohio	43,500,000	.....	.....	43,500,000	3,165,000	*40,335,000*	—3,165,000
West Virginia	45,000,000	.....	.....	45,000,000	3,539,000	*41,461,000*	—3,539,000
Pennsylvania	267,730,000	.....	.....	267,730,000	17,354,000	*250,376,000*	—17,354,000
New York	56,750,000	.....	.....	56,750,000	5,105,000	*51,645,000*	—5,105,000
Total United States	18,232,774,000	488,894,000	2,223,494,000	20,943,162,000	1,255,783,000	*19,687,379,000*	1,455,604,000

by over 100 per cent, having 1.5 per cent of the country's reserves at the beginning of the year and 3.1 per cent at the end. Michigan failed to find new reserves to balance its production for the first time in recent years, but Indiana entered the list of eastern states with new reserves well in excess of current production.

Of the country's partially developed reserves, (Class 1), over one-half, or 2,076,400,000 bbl. are in Texas. California, with 770,777,000 bbl. ranks second. The comparatively poor position of Illinois is due to the rapid development of new fields which throws recent discoveries into Class 2.

Texas also leads in flush and semiflush fields with 8,126,345,000 bbl., while California is again in second place with 2,668,007,000 bbl. Illinois is third, having 519,799,000 bbl. of reserves in flush fields.

California is in the lead of the settled producers, with 1,008,838,000 bbl., or nearly 30 per cent. Oklahoma is a fairly close second with 882,035,000 bbl. and Texas is in third place with 591,310,000 bbl.

The reserve figures of 1939 and 1940 can be studied from a great many angles and many conclusions may be drawn from them. One conclusion which permits little argument is that from the standpoint of increased reserves and better distribution of those reserves, 1939 was a highly successful year. Based on present drilling and exploratory activity, indications are that 1940 will develop as great an increase as was found in 1939, both in new fields and in extensions, although there may be considerable difference of opinion as to the distribution of these new reserves.

The following tables list the 1939 new discoveries and extensions by fields with estimates of proven reserves as of January 1, 1940:

TABLE 2--ESTIMATED RESERVES BY TYPE (Data in Barrels)

	Group 1 Partially developed fields	Group 2 Flush and semi-flush fields	Group 3 Fields on settled production	Year's supply Jan. 1, 1940	Year's supply Jan. 1, 1939	Per cent of total Jan. 1, 1940	Per cent of total Jan. 1, 1939
Los Angeles Basin	.....	383,285,000	516,584,000	7.9	6.6	4.6	4.6
Coastal	130,730,000	274,328,000	80,785,000	17.7	16.9	2.4	2.5
San Joaquin Valley	640,047,000	1,010,414,000	431,459,000	24.9	19.7	10.8	10.3
California	770,777,000	1,668,007,000	1,008,838,000	15.4	12.7	17.6	17.4
Montana	.....	66,277,000	21,921,000	15.1	18.1	0.4	0.5
Wyoming	140,171,000	25,491,000	112,399,000	13.1	14.4	1.4	1.5
Colorado	6,220,000	4,663,000	10,882,000	15.5	15.7	0.1	0.1
Utah	.....	.....	18,000	9.0	10.0	0.0	0.0
New Mexico	211,127,000	487,256,000	5,532,000	18.7	18.7	3.5	3.7
Texas Panhandle	.....	723,662,000	.....	29.5	30.4	3.7	4.1
West Texas	719,452,000	1,643,024,000	102,137,000	31.1	30.6	12.5	12.0
North Central Texas	146,769,000	273,852,000	201,445,000	†19.6	21.4	3.2	2.9
West Central Texas	9,932,000	56,782,000	73,182,000	†13.9	8.8	0.7	0.7
East and East Central Texas	3,120,000	3,040,880,000	24,933,000	16.1	16.2	14.5	16.7
Laredo district	93,219,000	78,509,000	80,121,000	9.8	8.0	1.2	1.3
Corpus Christi district	253,483,000	597,174,000	16,360,000	18.0	17.9	4.4	4.3
San Antonio district	1,885,000	27,342,000	25,471,000	6.5	7.1	0.3	0.3
Gulf Coast (Texas)	848,540,000	1,861,870,000	87,661,000	37.7	34.1	14.2	13.8
Texas	2,076,400,000	8,126,345,000	591,310,000	22.2	21.7	54.8	56.1
Gulf Coast (Louisiana)	343,757,000	305,386,000	61,927,000	10.3	8.2	3.6	3.0
North Louisiana	49,775,000	29,217,000	92,431,000	6.8	6.9	0.9	1.0
Louisiana	393,532,000	334,603,000	154,358,000	9.4	7.9	4.5	4.0
Arkansas	196,049,000	30,179,000	83,928,000	14.5	9.5	1.6	1.0
Mississippi	2,297,000	.....	.....	*7.4	0.0	0.0	0.0
Oklahoma	27,304,000	378,567,000	882,035,000	8.4	8.3	6.5	7.8
Kansas	224,199,000	321,918,000	187,625,000	12.4	11.1	3.7	3.5
Nebraska	49,000	.....	.....	‡4.0	0.0	0.0	0.0
Illinois	33,491,000	518,799,000	65,238,000	6.7	12.3	3.1	1.5
Indiana	6,300,000	3,344,000	11,300,000	14.6	12.7	0.1	0.1
Kentucky	.....	5,398,000	50,600,000	10.0	10.4	0.3	0.3
Tennessee	.....	.....	450,000	9.0	10.0	0.0	0.0
Michigan	16,470,000	9,190,000	32,705,000	2.5	3.2	0.3	0.3
Ohio	.....	.....	40,335,000	12.7	13.2	0.2	0.2
West Virginia	.....	.....	41,461,000	11.7	12.1	0.2	0.2
Pennsylvania	.....	.....	250,376,000	14.4	15.3	1.3	1.5
New York	.....	.....	51,645,000	10.1	11.2	0.3	0.3
United States	4,104,386,000	11,990,037,000	3,602,958,000	15.7	15.2	100.0	100.0

*Based on 3 months' production. †Part of West Central Texas transferred to North Central Texas in 1939. ‡Based on 1 month's production.

CALIFORNIA

Discoveries

Field and county; producing formation—	Acreage proven	Formation thickness	Estimated Reserves
Coalinga Northeast, Fresno	....	.....	30,000,000
Arvin, Kern	....	.....	3,000,000
Paloma, Kern	....	.....	5,000,000
Strand, Kern	....	.....	7,500,000
Total	....		45,500,000
Extensions			
Coalinga, Southeast, Fresno	....	.....	150,000,000
Canal, Kern	....	.....	2,500,000
Cole's Levee, Kern	....	.....	25,000,000
Rio Bravo, Kern	....	.....	30,000,000
Tupman, Kern	....	.....	30,000,000
Wasco, Kern	....	.....	2,500,000
Total—Northern or San Joaquin Valley	....	.....	240,000,000
Rancho San Francisco	....	.....	2,500,000
Rincon, Ventura	....	.....	1,500,000
San Miguelito, Ventura	....	.....	2,000,000
Santa Maria Valley, Santa Barbara	....	.....	15,000,000
Ventura Avenue, Ventura	....	.....	16,500,000
Total—Coastal	....	.....	37,500,000
Dominguez, Los Angeles	....	.....	10,000,000
Montebello, Los Angeles	....	.....	10,000,000
Potrero, Los Angeles	....	.....	750,000
Rosecrans, Los Angeles	....	.....	11,750,000
Wilmington, Los Angeles	....	.....	120,000,000
Huntington Beach, Orange	....	.....	25,000,000
Total—Southern or Los Angeles Basin	....		177,500,000

MONTANA

Discovery

West Pondera, Teton	40	.....	40,000
Extensions			
Cut Bank, Glacier	960	.....	1,920,000

WYOMING

Discoveries

Wertz, Carbon; lower Tensleep	250	.....	7,500,000
Lance Creek, Niobrara; Joss sand	2,240	.....	11,200,000
Total	2,490	.....	18,700,000
Extensions			
Lance Creek, Niobrara; Sundance	240	.....	2,400,000
Lance Creek, Niobrara; Leo sand	600	.....	4,800,000
Total	840		7,200,000

COLORADO

Field and county; producing formation—	Acreage proven	Formation thickness	Estimated Reserves
Discovery			
Fort Collins, Larimer; Dakota sand	160	.....	800,000
Extension			
Wilson Creek, Rio Blanco; Morrison	160	.....	1,600,000

NEW MEXICO

Discoveries

High Lonesome, Eddy; Permian lime	100	20	350,000
Loco Hills, Eddy; Permian sand	4,500	14	18,000,000
Wills, Eddy; Permian sand	40	15	140,000
Halfway, Lea; Permian lime	100	10	300,000
North Maljamar, Lea; Permian lime	40	.....	80,000
South Maljamar, Lea; Permian sand	40	15	100,000
South Lovington, Lea; Permian lime	2,000	60	2,000,000
Total	6,820		20,970,000
Extensions			
Artesia, Eddy; San Andres (Permian)	1,000	20	3,500,000
South Eunice, Lea; White lime (Permian)	1,400	45	14,000,000
Hardy (inc. Skaggs), Lea; Permian sand and lime	1,500	75	6,000,000
Langlie, Lea; Permian sand	500	20	1,500,000
Mattix, Lea; Permian sand	2,200	23	6,600,000
Penrose, Lea; Permian sand	1,000	..	3,500,000
Skelly, Lea; Permian sand	500	27	2,000,000
Vacuum, Lea; Permian lime	1,000	200	9,000,000
Total	9,100		46,100,000

WEST TEXAS

Discoveries

Apco, Pecos; Ellenburger (Ord)	160	40	1,600,000
Cedar Lake, Gaines; San Andres (Perm)	2,500	50	18,750,000
Fromme, Pecos; Yates sand	300	15	1,200,000
Lehn, Pecos; Yates sand	700	25	3,500,000
North Cowden Deep, Ector; Permian lime	1,000	30	8,000,000
Opp, Schleicher; Cisco (Penn)	40	12	80,000
Page, Schleicher; Strawn (Penn)	40	20	160,000
Waples-Platter, Yoakum; Permian lime	80	40	160,000
Total	4,820		33,450,000
Extensions			
Emma, Andrews; Big lime	560	30	2,240,000
Fuhrman-Walker, Andrews; Big lime	900	30	5,400,000
Means, Andrews; Big lime	600	20	3,900,000
Dean, Cochran; Blaine lime	1,920	60	7,680,000
Duggan, Cochran; Blaine lime	4,500	60	22,500,000
Dunes, Crane; Big Lake lime	300	75	1,800,000
Jordan, Crane-Ector; Big lime	500	40	4,000,000
McCamey, Crane-Upton; Big lime	500	30	3,500,000

Field and county; producing formation—	Acreage proven	Formation thickness	Estimated Reserves
Sand Hills, Crane; Big lime	900	52	7,650,000
Waddell, Crane; Big lime	260	40	2,080,000
Crockett, Crockett; Big lime	1,250	25	7,500,000
North Cowden, Ector; Big lime	5,600	56	50,600,000
Foster, Ector; Big lime	3,500	35	24,500,000
Goldsmith, Ector; Big lime	5,000	70	55,000,000
Wasson, Gaines-Yoakum; Big lime	4,000	49	32,000,000
Snyder, Howard; Big lime	1,200	35	6,000,000
Slaughter, Hockley; Blaine lime	7,000	50	52,500,000
Pecos Valley, Pecos; Yates sand	300	17	900,000
Taylor-Link, Pecos; Big lime	200	15	1,100,000
Shearer, Pecos; Yates sand	280	32	700,000
White and Baker, Pecos; Big lime	250	15	250,000
Payton, Pecos-Ward; Yates sand	500	40	1,500,000
Sharon, Scurry; Big lime	1,120	30	3,360,000
South Ward, Ward; Penn-Bennett (Perm)	2,000	30	11,000,000
Estes, Ward; Estes sand	200	15	1,000,000
North Ward, Ward; O'Brien sand (Perm)	600	25	4,000,000
Keystone (Colby), Winkler; Yates sand	3,000	30	15,000,000
Total	46,940		326,660,000

NORTH CENTRAL TEXAS

Discoveries

Griffin, Archer (Strawn)	100	24	500,000
Griffin, Archer (Cisco) (1,600 ft.)	40	8	120,000
Hart, Archer; Thomas sand (Cisco)	40	7	120,000
Hull-Silk, Archer; Cisco (1,300 ft.)	60	5	240,000
Kadane, Archer; Caddo lime (Bend)	80	30	480,000
Mankins Deep, Archer; Caddo lime (Bend)	160	30	1,120,000
Seymour, Baylor; Canyon	400	20	3,200,000
Morton, Cooke; Strawn	20	10	60,000
T.C.U., Cooke; Strawn	100	15	400,000
Voth, Cooke; Ellenburger	200	15	1,200,000
Burns, Clay; Strawn	160	36	1,120,000
Costley-Taylor, Clay; Cisco	80	18	400,000
Halsell, Clay; Strawn	80	42	600,000
Kinder, Clay; Strawn	40	25	200,000
Ross, Clay; Smithwick (Bend)	40	....	400,000
Nelson, Jack; Lake sand (Bend)	200	20	1,500,000
Warren, Jack; Strawn	20	43	100,000
Bowers, Montague; Strawn (3 pays)	640	25	5,120,000
Rogers and Rogers, Montague; Bend, Strawn (4 pays)	640	25	6,400,000
Consolidated, Wilbarger; Strawn	640	50	4,480,000
Pois and Schulz, Wilbarger; Cisco	100	10	400,000
Brader-Clark, Young; Caddo lime (Bend)	40	20	200,000
Total	3,880		28,360,000

Extensions

Hull-Silk, Archer; Strawn (4,300 ft.)	4,000	35	24,000,000
Muenster, Cooke; Canyon	300	15	1,500,000
Walnut Bend, Cooke; Strawn, Ordovician (3 pays)	600	30	6,000,000
Bryson, Jack; Strawn	2,000	25	16,000,000
Hott, Montague; Strawn	100	35	480,000
Asylum, Wichita; Bend	40	15	120,000
K.M.A., Wichita-Archer; Strawn	5,000	100	38,500,000
Wichita County; Cisco	500	....	3,000,000
Castlebury, Wilbarger; Milan sand	300	20	1,800,000
Phillips-King, Wilbarger; Milan sand	300	22	1,800,000
James, Yorna; Bend	1,000	22	3,000,000
Knight, Young; Bend	100	25	1,000,000
Sewell, Young; Bend	700	25	4,200,000
Willis-Steward, Young; Larrimore sand	50	15	200,000
Wray, Young; Bend	120	35	840,000
Total	15,110		102,440,000

WEST CENTRAL TEXAS

Discoveries

Hill, Brown; Fry sand (Cisco)	20	20	80,000
Scranton, Callahan (Cisco)	40	22	240,000
Anzac, Coleman; upper Strawn	600	16	1,800,000
Appling, Jones; Swastika sand	100	10	300,000
Herndon, Jones; Cisco sand	40	8	80,000
Lane area, Palo Pinto; Strawn	60	15	240,000
Douglas, Shackelford; King sand (Cisco)	20	15	60,000
Dawson-Conway, Shackelford; Bluff Creek (Cisco)	80	10	320,000
Roeser-Cook, Shackelford; Cook sand (Cisco)	20	15	80,000
Spell area, Shackelford; Cisco	30	5	90,000
Fagg, Stephens; Caddo lime (Bend)	20	15	80,000
Loving, Stephens; Caddo lime	80	20	400,000
Stroud, Stephens; Kysinger sand (Strawn)	80	10	320,000
Boyd, Stonewall; Palo Pinto (Canyon)	40	30	280,000
Bowles, Taylor; Cook sand (Cisco)	160	10	800,000
Total	1,390		5,170,000

Extensions

Brown County; Canyon, Strawn	100	....	200,000
Novice, Coleman; Strawn	300	25	1,800,000
Avoca, Jones; Palo Pinto (Canyon)	200	40	1,500,000
Griffin, Jones; Palo Pinto	800	50	5,600,000
Lewis-Steffens, Jones; Bluff Creek (Cisco)	760	15	4,560,000
Guitar, Jones; Hope sand (Cisco)	150	12	600,000
Ivy, Shackelford; Palo Pinto	600	35	6,300,000
Stribling, Stephens; Caddo lime (Bend)	360	30	1,800,000
Rich-Andrews, Stephens; Eastland Lake sand	80	20	320,000
Total	3,350		22,680,000

EAST TEXAS

Discoveries

Armstrong, Denton; Strawn	20	20	80,000
Rowe and Baker, Henderson; Woodbine	100	7	500,000
Barron, Limestone; Glenrose (distillate)	80	25	160,000
Bazette, Navarro; Woodbine	160	15	1,280,000
Total	360		2,020,000

Extensions

Long Lake, Anderson-Freestone; Woodbine	500	32	13,500,000
Flag Lake, Henderson; Woodbine	80	10	680,000
Grapeland, Houston; Woodbine (distillate)	300	40	1,200,000
Navarro Crossing, Houston-Leon; Woodbine	1,800	15	14,400,000
Chapel Hill, Smith; Glenrose (distillate)	100	10	100,000
Total	2,780		29,880,000

BORDER COUNTIES

Discovery

Smithland, Marion	....	....	100,000

LAREDO DISTRICT

Discoveries

Chiltipin, Duval	60	15	600,000
Muralla, Duval	180	10	600,000
Sejita, Duval	100	10	50,000
Southland, Duval	100	20	1,000,000
Tarancahuas, Duval	200	10	800,000
Gutierrez, Jim Hogg	200	7	580,000
White Creek, Live Oak	50	10	250,000
North Ricaby, Starr	20	10	100,000
Seabury, Starr	10	5	50,000
Adami, Webb	200	10	800,000
Volpe, Webb	100	10	500,000
Total	1,220		5,310,000

Extensions

Kelsey, Brooks-Jim Hogg	....	10	7,000,000
Fitzsimmons, Duval	....	10	2,870,000
Piedre de Lumbre, Duval	785	12	1,025,000
Southwest Hoffman, Duval	40	10	300,000
Colorado, Jim Hogg	700	10	3,500,000
Rincon, Starr	1,000	10	3,500,000
Sun, Starr	....	10	5,800,000
Total	2,535		23,995,000

CORPUS CHRISTI DISTRICT

Discoveries

Heard, Bee	10	10	50,000
Powderhorn, Calhoun	20	10	50,000
McAllen, Hidalgo	300	30	450,000
Ben Bolt, Jim Wells	450	20	4,950,000
Blucher, Jim Wells	200	30	250,000
Camada, Jim Wells	40	20	100,000
La Gloria, Jim Wells	200	30	1,400,000
Magnolia City, Jim Wells	150	10	1,500,000
Reynolds, Jim Wells	550	72	3,630,000
South Alfred, Jim Wells	210	10	3,570,000
Wade City, Jim Wells	640	20	640,000
Bird Island, Kleberg	100	12	600,000
Minnie Bock, Nueces	600	15	3,000,000
North Luby, Nueces	100	10	555,000
Robstown, Nueces	20	20	200,000
Riverside, Nueces	200	5	1,400,000
East Mathis, San Patricio	80	10	400,000
Odem, San Patricio	150	15	900,000
Cologne, Victoria	10	10	50,000
Victoria, Victoria	200	10	800,000
Melon Creek, Refugio	750	25	9,375,000
Total	4,980		33,870,000

Extensions

McCampbell, Aransas-San Patricio	....	7	28,800,000
East Premont, Jim Wells	600	15	20,000,000
Oakville, Live Oak	20	12	50,000
Richard King, Nueces	200	10	250,000
South Clara Driscoll, Nueces	600	10	3,000,000
La Rosa, Refugio	600	4	12,315,000
East White Point, San Patricio	1,500	12	28,500,000
McFaddin, Victoria	....	25	3,550,000
Total	....		96,465,000

SAN ANTONIO DISTRICT

Discoveries

Red Rock, Bastrop	25	20	100,000
Atha, Caldwell	10	10	25,000
Broadnex, Guadalupe	10	....	50,000
Elm Creek, Guadalupe	10	12	50,000
Glenn, Guadalupe	10	22	60,000
Total	65		285,000

UPPER GULF COAST

Discoveries

Anchor, Brazoria	880	20	8,800,000
Chocolate Bayou, Brazoria	40	10	300,000
Cedar Bayou, Chambers	100	5	250,000
Rosenberg, Fort Bend	40	10	180,000
Caplen, Galveston	200	20	1,800,000
Aldine, Harris	80	10	320,000
North Houston, Harris	100	10	500,000
Texana, Jackson	40	10	20,000
South China, Jefferson	80	20	640,000
Martha, Liberty	80	10	800,000
Buttermilk Slough, Matagorda	40	8	200,000
Hilje, Wharton	100	10	400,000
Total	1,780		14,210,000

Extensions

Thompson, Fort Bend	400	10-75	16,470,000
League City, Galveston	700	30	10,500,000
Clear Lake, Harris	200	15	600,000
Eureka, Harris	300	25	4,000,000
Cordelle, Jackson	300	10	2,260,000
West Ranch, Jackson	2,500	60	244,000,000
Clam Lake, Jefferson	100	10	500,000
Fannett, Jefferson	50	13	100,000
Lovells Lake, Jefferson	1,900	10	44,590,000
Esperson, Liberty	150	50	3,750,000
Armon, Matagorda	40	10	500,000
Ace, Polk	400	20	18,000,000
Total	7,040		345,270,000

LOUISIANA GULF COAST

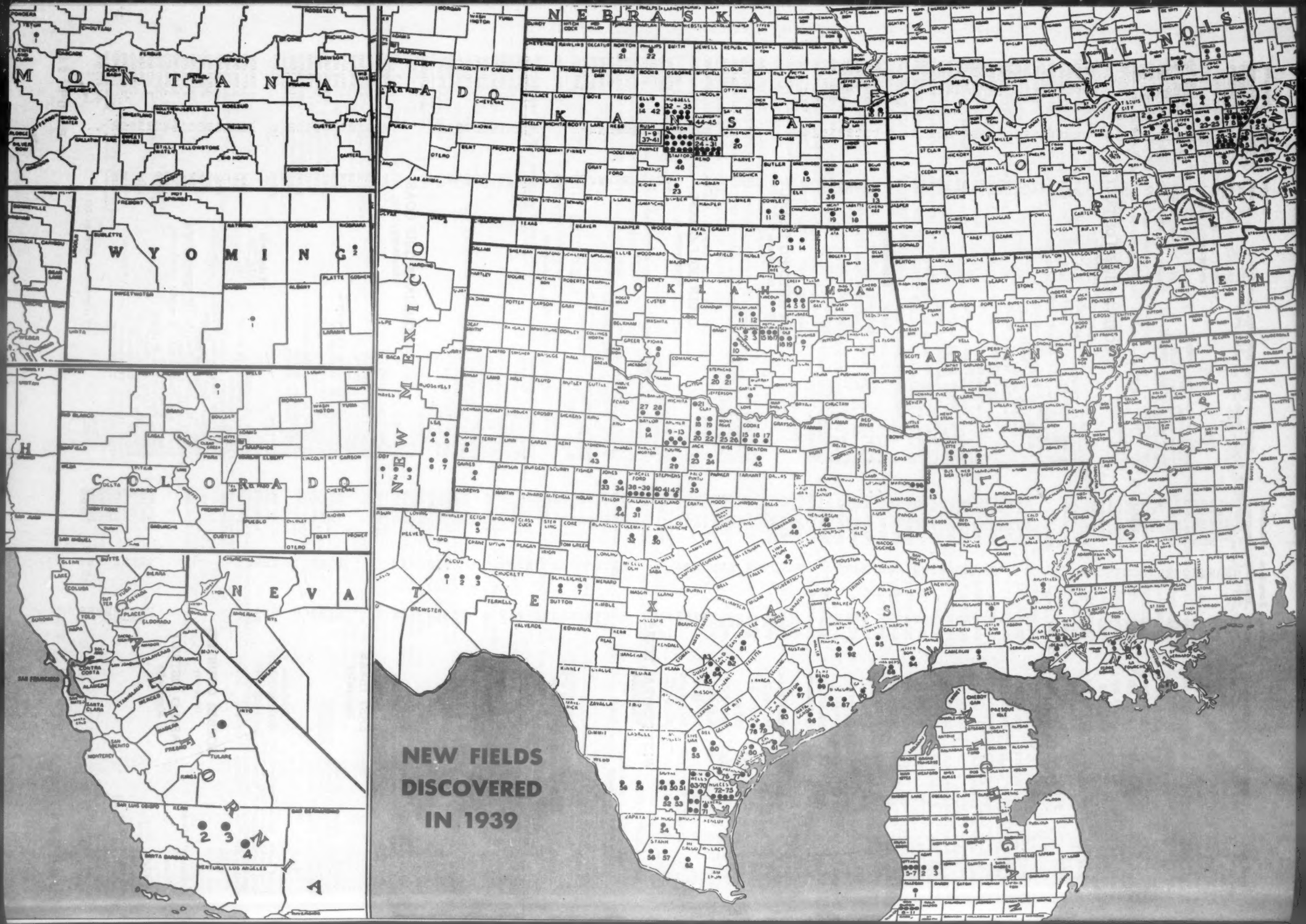
Discoveries

North Elton, Allen	100	25	500,000
Eola, Avoyelles	2,000	100	70,000,000
Grand Lake, Cameron	200	30	3,000,000
Vermilion Bay, Iberia	100	108	5,000,000
Barataria, Jefferson	100	10	1,000,000
La Fourche Crossing, La Fourche	100	10	2,000,000
Kenilworth, St. Bernard	100	10	750,000
Paradis, St. Charles	1,000	62	30,000,000
La Pice, St. James	100	60	2,000,000
La Place, St. John the Baptist	100	10	200,000
Happytown, St. Martin	1,000	25	25,000,000
Plumb Bob, St. Martin	100	20	1,000,000
Total	5,000	140	450,000

Extensions

Darrow, Ascension	....	10	1,000,000
Chalkley, Cameron (3 sands)	1,400	60	15,000,000
Creole, Cameron	150	35	2,000,000
East Hackberry, Cameron	75	30	1,125,000
Villa Platte, Evangeline; Wilcox	1,500	60	40,000,000
University, East Baton Rouge	600	10	5,000,000
Woodlawn, Jefferson Davis	50	10	350,000
Golden Meadow, La Fourche (10 sands)	500	5-10	10,000,000
Timbalier Bay, La Fourche	100	15	1,500,000
Grand Bay, Plaquemines (2 sands)	250	60	5,000,000
Potash, Plaquemines	150	20	3,000,000
Venice, Plaquemines (2 sands)	100	114	3,500,000
Bateman Lake, St. Mary's	....	10	1,500,000
West Lake Verret, St. Mary's	100	10	750,000
Bay St. Elaine, Terrebonne	....	15	2,000,000
South Houma, Terrebonne	120	10	2,000,000
West Gueydan, Vermilion	100	10	750,000
Total	....		94,475,000

(Continued on Page 218)


MONTANA
WYOMING
COLORADO
NEVADA
NEBRASKA
KANSAS
OKLAHOMA
NEW MEXICO
TEXAS
ILLINOIS
ARKANSAS
LOUISIANA
NEW FIELDS
DISCOVERED
IN 1939

Discover 254 New Oil Fields During 1939

ARKANSAS

Field—	County
(1) Columbia	Big Creek
(2) Columbia	Dorcheat
(3) Lafayette	Lewisville

CALIFORNIA

(1) Northeast Coalinga	Fresno
(2) Arvin	Kern
(3) Paloma	Kern
(4) Strand	Kern

ILLINOIS

(1) Sorento*	Bond
(2) Centralia*	Clinton
(3) Barteiso*	Clinton
(4) Iola	Clay
(5) Hutton	Coles
(6) Mattoon	Coles
(7) Cowling	Edwards
(8) Grayville	Edwards
(9) Whittington	Franklin
(10) Junction	Gallatin
(11) Casner	Jefferson
(12) Cravat	Jefferson
(13) Salem*	Marion
(14) Tonti	Marion
(15) Fairman	Marion
(16) Dundas	Richland
(17) Stewardson	Shelby
(18) Griffin	Wabash
(19) Keensburg	Wabash
(20) Mount Carmel	Wabash
(21) Cordes	Washington
(22) Dubois	Washington
(23) Barnhill	Wayne
(24) Enterprise	Wayne
(25) Golden Gate	Wayne
(26) Calvin	White
(27) Mill Shoals	White
(28) Phillipstown	White
(29) Stokes	White
(30) Storms	White
(31) New Harmony	White
(32) Springerton	White

INDIANA

(1) North Francisco	Gibson
(2) Griffin	Gibson
(3) Mumford (Heston)	Gibson
(4) Hazelton	Knox
(5) Heusler*	Posey
(6) Ribeyre Island	Posey
(7) Enterprise	Spencer
(8) Millersburg	Warrick

KENTUCKY

(1) Corydon	Henderson
(2) Reed	Henderson
(3) Thurston	Daviess
(4) Livermore	McClean
(5) Belton	Muhlenburg

KANSAS

(1) Kruckenberg	Barton
(2) Marchand	Barton
(3) West Marchand	Barton
(4) Pospishel	Barton
(5) West Prusa	Barton
(6) North Prusa	Barton
(7) Krier	Barton
(8) Harzman	Barton
(9) Feltes	Barton
(10) Ferrell	Butler
(11) Darien	Cowley
(12) Rahn	Cowley
(13) Johnson	Crawford
(14) South Burnett	Ellis
(15) Sowder	Greenwood
(16) Gardner	Johnson
(17) West Gardner	Johnson
(18) Edna	Labette
(19) Clemmer	McPherson
(20) North Bornholdt	Montgomery
(21) Van Patten	Norton
(22) Bow Creek	Phillips
(23) Cairo	Pratt
(24) Proffitt	Rice
(25) Barngrover	Rice
(26) Midway	Rice
(27) Hodge	Rice
(28) South Wherry	Rice
(29) East Orth	Rice
(30) West Bredfeldt	Rice
(31) Lyons	Rice
(32) North Fairfield	Russell
(33) Southwest Letsch	Russell
(34) North Atherton	Russell
(35) West Trapp	Russell
(36) Coyville	Wilson

*Extension due to deeper pay zone.

New Horizons In Old Pools

Field—	County
(37) Ainsworth-Topeka	Barton
(38) Beaver-shallow	Barton
(39) Kruckenberg-Lansing	Barton
(40) Prusa-basal	Barton
(41) Prusa-Lansing	Barton
(42) Burnett-Lansing	Ellis
(43) Silica-Lansing	Rice
(44) Coralena-Dodge	Russell
(45) North Fairfield-Arbuckle	Russell
(46) Max-Lansing	Stafford

TEXAS

West Texas

(1) Apco	Pecos
(2) Fromme	Pecos
(3) Lehn	Pecos
(4) Cedar Lake	Gaines
(5) North Cowden	Ector
(6) Opp	Schleicher
(7) Page	Schleicher
(8) Waples-Platter	Yoakum

North Central Texas

(9) Griffin*	Archer
(10) Hart	Archer
(11) Hull-Silk*	Archer
(12) Kadane*	Archer
(13) Mankins deep	Archer
(14) Seymour	Baylor
(15) Morton	Cooke
(16) T.C.U.	Cooke
(17) Voth	Cooke
(18) Burns	Clay
(19) Halsell	Clay
(20) Kinder	Clay
(21) Costley	Taylor
(22) Ross	Clay
(23) Nelson	Jack
(24) Warren	Jack
(25) Bowers	Montague
(26) Rogers & Rogers	Montague
(27) Consolidated	Wilbarger
(28) Pois & Schulz	Wilbarger
(29) Brader-Clark	Young

West Central Texas

(30) Hill	Brown
(31) Scranton	Callahan
(32) Anzac	Coleman
(33) Appling	Jones
(34) Herndon	Jones
(35) Lane area	Palo Pinto
(36) Douglas	Shackelford
(37) Dawson-Conway	Shackelford
(38) Roeser-Cook	Shackelford
(39) Spell area	Shackelford
(40) Fagg	Stephens
(41) Loving	Stephens
(42) Stroud	Stephens
(43) Boyd	Stonewall
(44) Bowles	Taylor

East Texas

(45) Armstrong	Denton
(46) Rowe & Baker	Henderson
(47) Barron	Limestone
(48) Bazette	Navarro

Laredo District

(49) Chiltipin	Duval
(50) Muralla	Duval
(51) Sejita	Duval
(52) Southland	Duval
(53) Tarancahuas	Duval
(54) Gutierrez	Jim Hogg
(55) White Creek	Live Oak
(56) North Ricaby	Starr
(57) Seabury	Starr
(58) Adami	Webb
(59) Volpe	Webb

Corpus Christi District

(60) Heard	Bee
(61) Powderhorn	Calhoun
(62) McAllen*	Hidalgo
(63) Ben Bolt	Jim Wells
(64) Blucher	Jim Wells
(65) Camada	Jim Wells
(66) La Gloria	Jim Wells
(67) Magnolia City	Jim Wells
(68) Reynolds	Jim Wells
(69) South Alfred	Jim Wells
(70) Wade City	Jim Wells
(71) Bird Island	Kleberg
(72) Minnie Bock	Nueces
(73) North Luby	Nueces
(74) Robstown	Nueces
(75) Riverside	Nueces
(76) East Mathis	San Patricio
(77) Odem	San Patricio
(78) Cologne	Victoria
(79) Victoria	Victoria
(80) Melon Creek	Refugio

San Antonio District

Field—	County
(81) Red Rock	Bastrop
(82) Atha	Caldwell
(83) Broadnex	Guadalupe
(84) Elm Creek	Guadalupe
(85) Glenn	Guadalupe

Upper Gulf Coast

(86) Anchor	Brazoria
(87) Chocolate Bayou	Brazoria
(88) Cedar Bayou	Chambers
(89) Rosenberg	Fort Bend
(90) Caplen	Galveston
(91) Aldine	Harris
(92) North Houston	Harris
(93) Texane	Jackson
(94) South China	Jefferson
(95) Martha	Liberty
(96) Buttermilk Slough	Matagorda
(97) Hilje	Wharton
(98) Smithland	Marion

OKLAHOMA

(1) Caddo	Carter
(2) Norman	Cleveland
(3) Section 16-9-2w	Cleveland
(4) West Nuyaka	Creek
(5) East Bruce	Creek
(6) West Walker	Creek
(7) Section 23-6-8	Hughes
(8) Hobart	Kiowa
(9) Section 20-17-6	Lincoln
(10) Chism	McClain
(11) Jones	Oklahoma
(12) South Newalla	Oklahoma
(13) Kaw pool	Osage
(14) South Hickory Creek	Osage
(15) Sacred Heart	Pottawatomie
(16) King	Pottawatomie
(17) West King	Pottawatomie
(18) North Bebee	Seminole
(19) East Searight	Seminole
(20) West Doyle	Stephens
(21) Milroy	Stephens, new pay discovery in old field.

NEBRASKA

(1) Falls City	Richardson

LOUISIANA

Gulf Coast

(1) North Elton	Allen
(2) Eola	Avoyelles
(3) Grand Lake	Cameron
(4) Vermilion Bay	Iberia
(5) Barataria	Jefferson
(6) La Fourche Crossing	La Fourche
(7) Kenilworth	St. Bernard
(8) Paradis	St. Charles
(9) La Pice	St. James
(10) La Place	St. John the Baptist
(11) Happytown	St. Martin
(12) Plumb Bob	St. Martin

North Louisiana

(13) Temple	Caddo

MISSISSIPPI

(1) Tinsley	Yazoo

MICHIGAN

(1) Hopkins	Allegan
(2) Walker	Kent
(3) Wyoming*	Kent
(4) Wise*	Isabella
(5) Carscallen	Ottawa
(6) Zeeland	Ottawa
(7) South Zeeland	Ottawa
(8) Gobles	Van Buren
(9) Bangor	Van Buren
(10) Clapsaddle	Van Buren
(11) Porter	Van Buren

MONTANA

(1) West Pondera	Teton

WYOMING

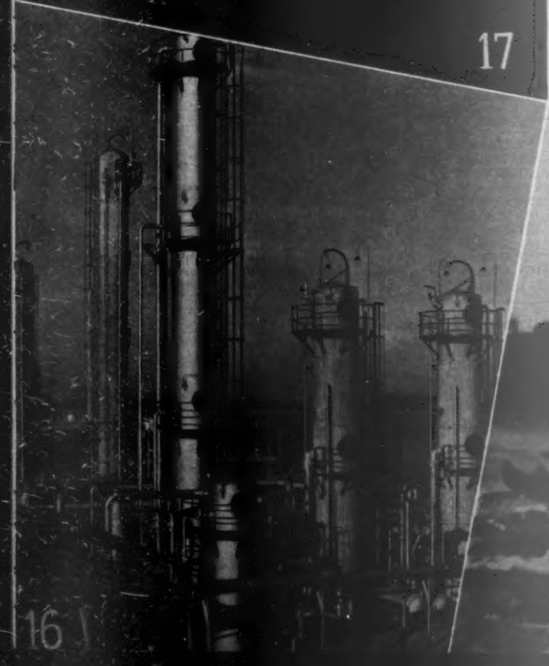
(1) Wertz*	Carbon
(2) Lance Creek*	Niobrara

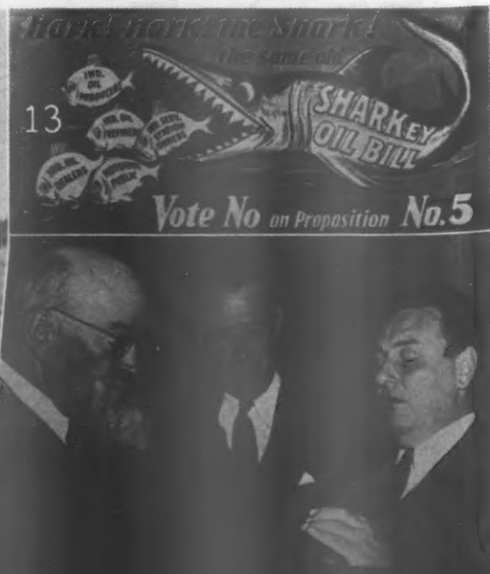
COLORADO

(1) Fort Collins*	Larimer

NEW MEXICO

(1) High Lonesome	Eddy
(2) Loco Hills	Eddy
(3) Wills	Eddy
(4) Halfway	Lea
(5) North Maljamar	Lea
(6) South Maljamar	Lea
(7) South Lovington	Lea





Pictorial Review

1—Cole congressional subcommittee which in 1934 conducted an exhaustive investigation of the oil industry, resumed hearings following introduction of a new bill providing for federal intervention in control of oil operations.

2—Sir Henri Deterding, "International Oil Man," one of the founders and for many years active head of the Royal Dutch-Shell, died February 9, at St. Moritz, Switzerland, at the age of 73.

3—A second world war started September 1, bringing a disruption of shipping, rationing of petroleum consumption, sinking of oil tankers and reduced gasoline exports from the United States.

4—Following a reduction in posted crude-oil schedules in August, members of the Interstate Oil Compact Commission at Oklahoma City discuss conditions, which was followed by a 2-week shutdown of fields in six states.

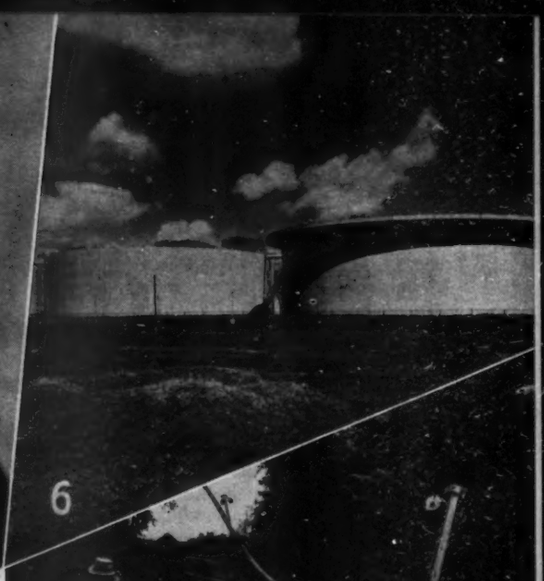
5—The U. S. Circuit Court of Appeals at Chicago on July 28 reversed findings of Judge Patrick T. Stone's (shown in picture) federal District Court in the "Madison case" and remands case for retrial. All other decisions during year favorable to defendants in case.

6—Shutdown of most fields in six states for 2 weeks during latter part of August results in a 35,000,000-bbl. withdrawal from crude storage, which is at the lowest level since 1922.

7—The most active pipe-line construction year in a decade with more than 4,000 miles of line laid saw many new lines placed in operation. View shows laying of the Socony-Vacuum, Inc., line in Illinois.

8—Catalytic cracking units of the Houdry type start operating at several refineries, giving further emphasis to the octane race in gasoline manufacture.

9—Nebraska is added to the list of oil-producing states on November 1 with the completion of the No. 1 Boise near Falls City in the extreme southeastern part of the state. Picture shows Skelly's R. R. Benson taking samples of the state's first crude for testing.



of 1939 Highlights

10—After several false alarms in recent years, Mississippi becomes an oil state with the completion of the Union Producing Co.'s No. 1 Woodruff near Yazoo City.

11—Gov. Leon C. Phillips of Oklahoma in speeches at the annual meetings of the I.P.A.A. and A.P.I. voices the opposition of the oil states to federal control as proposed by the Cole bill.

12—Average retail gasoline prices in November drop to the lowest level since 1933.

13—Atkinson oil-control bill passed by the California Legislature is defeated by voters in referendum vote in November general election.

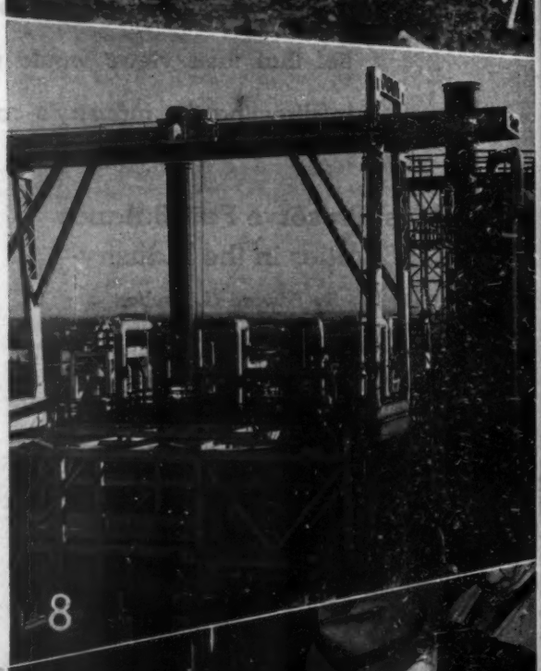
14—T.N.E.C. (antimonopoly) hearings cover 2 months at Washington during the fall. Picture shows W. S. Farish, president of the Standard Oil Co. of New Jersey, who spent several weeks in Washington before and during the hearing; R. E. McConnell, Department of Commerce, and Leon Henderson, economic adviser to T.N.E.C.

15—Thirty miles of pipe line owned by Shell Oil Co., Inc., blew up in North Texas in December. Causes are not yet determined.

16—Narrow spreads between crude-oil prices and plant revenue and improvement in product specifications make maximum efficiency in refinery operation mandatory and widespread construction takes place.

17—Illinois, with 200,000-bbl. daily increase from start to close of year becomes fourth largest oil-producing state.

18—South American Gulf Oil Co. (Texas and Socony-Vacuum) completes 260-mile line connecting Barco concession in Colombia with terminal on Caribbean. Line which crossed Andes Mountains and jungle country was one of the most difficult pipe-line jobs ever attempted.

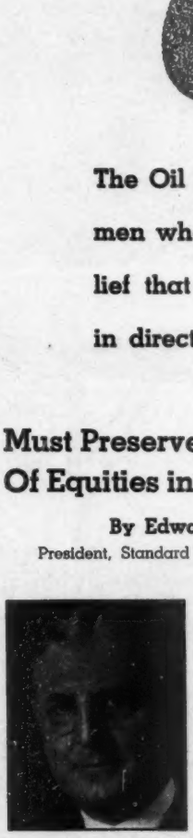


What Should Be the Industry's 1940 OBJECTIVES?

The Oil and Gas Journal asked the above question of the men whose discussions appear on these pages, in the belief that their views would serve a constructive purpose in directing the industry's course during the coming year

Must Preserve Fair Balance Of Equities in the Industry

By Edward G. Seubert
President, Standard Oil Co. (Indiana), Chicago



A WORTHY objective for the petroleum industry for 1940 would be to try for at least as good a distribution of its benefits as took place in 1939. Will that be possible? I don't know. We start the year with an octane race, with improvements in technology making better gasolines possible, and every prospect that the consumer will retain all the benefit to the exclusion of the stockholders whose money has provided the new equipment. The demand for domestic and industrial fuel oils is increasing more rapidly than the demand for motor fuels. For lack of rapid alterations in the proportions in which motor fuels and burning oils are being manufactured, the supply of motor fuel has become too large. Surpluses are depressing the market. Here is a problem in refining economics which must be met quickly if the general objective of reasonable stability is to be attained.

Competition in our industry is so intense that the interests of the consumer are at least adequately safeguarded. The marked reduction in motor-fuel prices in the last 10 years well illustrates that fact. Years of proration have put producers on a reasonably stable basis for which, as the events of last summer indicated, there seem to be ample forms of protection. Workers in the industry are generally much better off than a few years ago. But dealers are having a hard time adjusting their price policies so as to allow themselves sufficient recompense for their effort, and stockholders are still having to be content with a rather modest return on their investment, considering all the risks involved. It is bound to be a perplexing problem for managements generally to keep operations running on a basis that will fairly preserve the balance of equities that all interests have in the oil business.

Should Stop Overproduction In All Its Phases

By William N. Davis
Bartlesville, Okla.

THE outstanding and only effective objective is to stop overproduction in all of its phases. This demands cooperation.

As to crude oil, for the country as a whole, excessive stocks were reduced in 1939 but there has been and is now demoralizing and wasteful regional overproduction. The states, if they would, could largely correct this situation. Without the essential cooperative action between the states the industry can do little.

As to gasoline, the states are powerless and nothing but cooperation within the industry could prevent overproduction. Experience has taught the industry that such cooperation is prohibited by our laws. I can offer no practical solution of this problem.

A Few Companies Responsible For High Gasoline Stocks

By E. B. Reeser
President, Barnsdall Oil Co., Tulsa

THE tremendous stock of gasoline is a serious menace to the industry, but only a comparatively few companies should be charged with this demoralizing condition. The executives of these companies are fully aware of the influence of excessive stocks but evidently believe the stockholders are receiving too great a return on their investment.

Colonel Thompson and the other members of the Texas Railroad Commission have repeatedly called the industry's attention to the continually declining allowable daily production per well. The commissions have pointed out very clearly that every new completion of an oil well necessarily reduces the allowable of all other producing wells. Notwithstanding this well-known situation, the industry continues the expenditure of large sums of money on a very slow pay-out basis, and further retards the pay-out on previous expenditures.

It is recognized that lease obligations must be fulfilled but a survey of the various fields shows that a very large proportion of new wells are "inside" and were not required by any lease obligations.

The industry should call a "sit down" strike on all new drilling for a period of 6 months, lease obligations excepted.

We may worry about federal control, or we may think state conservation laws should be changed and the interstate oil compact be given teeth—but the producing branch of the industry has within its own power the privilege of improving conditions through better control of the drill.

For reasons which are now well known, the European war will not cause a scramble for gasoline.

The domestic demand for all products will continue to increase but the industry cannot earn reasonable profits on present prices.

Must Defeat Any Program Of Federal Control

By A. S. Ritchie

McPherson Drilling Co., Wichita, Kans.

THE foremost objective of the petroleum industry for the year 1940 should be the defeat of any program of federal control for the industry.

We have only to look at the record of efficiency established by governmental agencies, regardless of political affiliations, to be convinced that the oil industry would be in a much more demoralized state if under federal supervision than the industry ever was during the most depressed times of recent years. Federal control of the oil industry would be just one step farther in the destruction of personal liberties and the elimination of the right to engage in private enterprise.

To effectively combat federal control the oil industry should start at home. In the past, there has been too little cooperation between the operators within the state; there has been too much sparring for every advantage regardless of how temporary such advantage might be; there has been too little cooperation between oil-producing states, too much destructive criticism, too little constructive criticism; there has been too little cooperation between producers, transporters, and refiners. Each group has spent the major portion of its time in looking almost entirely at its own problem, arriving at decisions for the conduct of its part of the industry without regard to the effect of its operations on the other branches.

The time has arrived when all divisions of the industry, both large and small alike, must realize that no one group can long prosper at the expense of other branches; likewise, no effective defense against a common enemy such as governmental control can be maintained until a reasonable degree of harmony within the industry as a whole prevails.

We in the industry have continuously tried to cure our troubles by legislation with only minor success, so why not try that old, old formula of cooperation, fair dealing and the application of common sense.

●

Production Must Not Exceed Normal Inventory Needs

By L. B. Simmons

President, Rock Island Refining Co., Duncan, Okla.

THE management of each company should reduce its production of refined products with a view of eliminating high inventories, especially those on the Atlantic Coast, Texas Gulf Coast, and California. These territories are considerably out of line and with these conditions existing, the industry cannot be stabilized.

Those producing states that do not have adequate legislation for control of production should immediately pass such laws so that production in all states can be controlled in line with estimates by the Bureau of Mines. The interstate compact offers a medium that is adequate for the states to control production without intervention on the part of the federal Government.

Both state and federal authorities should realize that the oil industry is carrying a heavy tax burden and in many cases these taxes should be decreased.

The production of refined products should not be based upon export requirements on account of foreign wars. If and when such demand arises for more production, I believe that adequate capacity is available to supply the foreign needs as well as domestic.

The management of each corporation should see that each division operates at a fair profit and not allow one division to carry the load of another. Each company, acting through its sales department should sell for profit and not for gallonage.

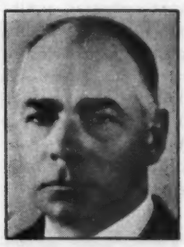
If the above recommendations were followed, then I believe the petroleum industry would be in a better position by the end of 1940.

●

Industry in Good Position to Supply Potential War Needs

By J. Howard Pew

President, Sun Oil Co., Philadelphia, Pa.



AT the beginning of 1940 a forecast of the oil industry's future is impossible for a number of reasons; most obvious of course, is the war. Presumably a long general war would increase the foreign demand for petroleum products; but to what extent is highly conjectural. War paraphernalia is more mechanized than in 1914, but there are vastly greater supplies of petroleum to be drawn on. In 1915 the United States produced 281,000,000 bbl.; in 1939, about 1,250,000,000 bbl. Yet the requirements of the first World War were met from the much smaller supplies of that time with complete satisfaction. When Colonel Rutherford, an Army authority on supplies, was asked by a congressional committee only a few weeks ago, if there was any difficulty in the past war to procure oil in the necessary quantity, he replied:

"No, sir. There was occasional difficulty getting it to the front on account of lack of transportation, but I recall no serious difficulty with the actual supply itself."

The fact is that any war demand for petroleum products would be surprisingly small in comparison with our present production. The testimony of Colonel Rutherford and Rear Admiral Stuart showed that the Navy now uses about 9,000,000 bbl. of fuel oil a year, while the Army uses about 1,250,000 bbl. of all oil products; requirement of the Navy, in war, might rise to 50,000,000 bbl., and of the Army to 10,000,000 or 12,000,000—a total of about 4 per cent of the national production.

Popular assumptions about wartime productions are grossly exaggerated. Three days of present national production would supply peacetime requirements for a year; 2 weeks' production would meet a year's wartime demand as indicated by Admiral Stuart and Colonel Rutherford. Last August a shutdown of wells for 2 weeks caused a drop in production of about 35,000,000 bbl.—three times as much as peacetime military-naval requirements and about two-thirds of estimated wartime needs for a year.

And not only this. Under the conservation and prorationing regulations of the interstate oil compact, production is held far below its potential. An order from the regulatory authorities authorizing the slight opening of control valves on wells would immediately bring an increase of production far beyond the extremest calculation of possible wartime needs. Finally, the country's proven reserves of petroleum in the ground will probably exceed 20,000,000,000, which represents about 300 times the outside estimate of annual wartime military and naval requirements.

Beyond these considerations regarding our domestic-oil situation is the fact that since the first World War production outside the United States has increased in about the same ratio as here. Venezuela is now producing more than half as much as the United States was in 1915, and is the third largest producing country; yet its output in 1915 was not important enough to be listed in the statistics of the subject.

Since the first World War civilian consumption of petroleum products in Europe, as in the United States, has enormously increased. It has been taken care of chiefly by imports, and by development of substitutes—products of coal, shales, gas and alcohol. But civilian motor fuels have been rigidly rationed in the present war, and the saving will go far toward meeting military and naval requirements.

Finally, wartime demands for gasoline will not make nearly so heavy a proportionate draft on petroleum as they made 25 years ago because present refining gets about twice as much gasoline from the crude as it got 25 years ago.

This sketchy survey leads to the conclusion that the war will bring no critical nor even difficult situation as to petroleum supplies. Transportation is everywhere much more efficient, by reason of the expansion of pipe-line and tanker service, than at the time of the first World War. Any fair appraisal must conclude that as to this essential of war our country is in far better position to supply petroleum products to the democratic powers than it was during the first World War. There is no possible ground for governmental interference with the organization, regulation and functioning of the industry by reason of military necessities. Rather, any drastic federal legislation such as has been advocated in some quarters would introduce elements of demoralization in the present efficient structure of the industry. No industry performed more effectively during the World War; it did so without the aid of Government; it is prepared today to do even better. All it needs is to be let alone. Any sort of governmental interference is bound to be a menace.

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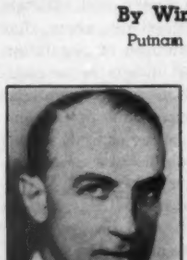
Should Unite to Oppose Oppressive Legislation

By Winston P. Henry

Putnam Oil Co., Houston



THE petroleum industry should work for the following objectives in this coming year of 1940:

1. We should unite in opposing any form of federal control on the grounds that there is no need for such control as has been suggested. We should endeavor to educate the American people and those in authority to the wonderful strides made by the oil industry in true conservation, not only in the producing branch of the business but also in the transportation, storage, refining, and marketing

divisions: that waste can be eliminated by self-interest and education, and a commissioner-dictator, as proposed in the Cole bill, is unnecessary and impractical.

2. We should unite in opposition against the effects of the Venezuelan Trade Pact which went into effect last December 16. This treaty should be attacked from the point of view that the State Department was not given any authority by Congress to decrease excise taxes; that the lowering of the bars set up against the large importations of foreign crude is not true conservation of our own resources and will aid no one except the importers.

3. We should endeavor to influence those states which do not yet have conservation laws to adopt such laws as not only being wise but desirable.

4. We should be constantly alert to endeavor to eliminate all the inequality of the allowables granted to leases and pools within each state having proration laws.

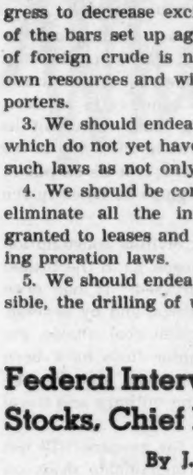
5. We should endeavor to limit, as much as possible, the drilling of unnecessary wells.

●

Federal Intervention, Excessive Stocks, Chief Menaces

By J. C. Hunter

President, Mid-Continent Oil and Gas Association



A BILL known as H.R. 7372, sponsored by the Secretary of the Interior and introduced by Congressman Cole is pending in Congress. In the judgment of most oil men this bill would be, if enacted into law, inimical to the best interests not only of the oil industry but of the oil-producing states and the general consuming public.

Consideration of H.R. 7372 as well as the broad subject of federal regulation of the oil industry especially in the producing division thereof, is now being conducted by a subcommittee of the House of Representatives, and hearings are being held for the purpose of bringing down to date the investigation of this subject previously conducted by the same committee in 1934. It is undoubtedly the purpose of the subcommittee to determine whether at this time the pending bill or any other federal legislation should be recommended for passage by the Congress.

The oil industry has the opportunity and responsibility of presenting in the most convincing manner possible the accomplishments of the industry under the prevailing system of state regulation assisted by existing federal law. It is equally important for the industry and officials of oil-producing states to effectively show that continuation of the present method of regulation constitutes the most practical means of accomplishing petroleum conservation truly beneficial alike to the industry and consuming public and more nearly achieves the objective sought, not of hoarding oil, but providing for its wise and beneficial use without avoidable waste.

It is not possible and should not be necessary to show that a perfect job has been done under the present method, but it is essential to show that commendable progress has been made and to emphasize the purpose of the industry as well as the state governments, to utilize to the fullest practicable extent the facilities available to them in furtherance of conservation.

For the double purpose of obtaining possible economic benefits and as a safeguard against passage of further federal regulatory laws, the oil industry faces the problem in 1940 of achieving better conservation practice by the industry and improved administration of existing state conservation regulations together with passage and effective administration of adequate conservation laws in oil-producing states not now having such legislation.

●

Balanced Refinery and Market Program is Greatest Need

By W. A. Delaney, Jr.

Ada, Okla.

IN my opinion, the principal objective of the industry in 1940 should be an earnest effort to bring about a balanced refining and marketing program.

The graphs showing status of crude-oil stocks, gasoline stocks, gas-oil and fuel-oil stocks appearing in any recent issue of The Oil and Gas Journal will show the urgent necessity of immediate action in this regard.

In August 1939, with an unprecedented exhibition of unselfish cooperation, the oil-producing states, with one or two exceptions, reduced crude oil in storage some thirty-five million barrels, in order to protect the entire industry from demoralization. Immediately upon the resumption of production the refiners and marketers commenced, or rather resumed, production on a basis that has already rendered negatory the unselfish action of the producers last August.

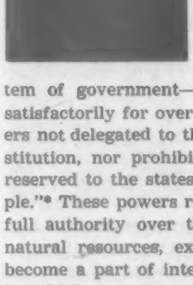
If we are to avoid a repetition of the debacle of 1931, the refiners and marketers must assume their share of the burden; they must sell their product at a reasonable profit to themselves; they must keep faith with the producers.

●

Must Preserve Present System Of State Regulation

By A. E. Johnson

President, Argo Oil Corp.



THE question of federal control of the petroleum industry involves more than the simple problem of whether we want to have the Department of the Interior supervise and, if necessary, control the production of crude oil in the United States. The real question is whether we want to change our system of government—a system that has worked satisfactorily for over 150 years. Today, "the powers not delegated to the United States by the Constitution, nor prohibited by it to the states, are reserved to the states respectively, or to the people."* These powers reserved to the states include full authority over their oil reserves and other natural resources, except where these resources become a part of interstate or foreign commerce, in which case the power to control is vested in the federal Government. The question involved in the federal-control issue is whether the states shall surrender their reserved powers to the federal Government. I think not.

The great bulk of the oil produced in the United States today is produced in states having proration laws. Under these laws, supplemented by the aid and cooperation of the federal Government through the Connally hot-oil law regulating the shipment in interstate commerce of oil produced in violation of the state laws, great progress has been made in conservation and the prevention of waste. It is true that not all oil-producing states have proration laws, and it is also true that where there are proration laws today, they do not always work perfectly. However, when we consider the youth of the industry and the great progress that has been made and is being made daily toward the desired ends of waste avoidance and conservation, together with ever-improved products at lower prices, it would seem that the cries of alarm now being heard from some quarters are premature and unwarranted to say the least.

The Government's handling of the railroads, the affairs of the Indians, and its success in its several business ventures do not encourage one to believe that it could do a better job in oil conservation than is now being done, and when it is remembered that its experiment in this field would have to be made at the expense of surrender of states' rights and of the right of the individual in the oil business to engage in free enterprise, it seems clear to me that there is nothing to justify the gamble.

*Art. 10, Amendments to the Constitution of the United States.

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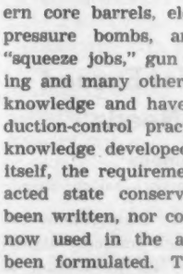
Disclaim Remotest Necessity For Federal Intervention

By L. M. Moffitt

President, Mid-Continent Oil and Gas Association, Shreveport, La.



AS we stop at this time to scan the horizon of the petroleum industry and its problems, we must necessarily look back and view the progress of the industry the past few years in conservation and more scientific and technical production methods. New equipment, tools and instruments, such as modern core barrels, electrical logging instruments, pressure bombs, and new practices such as "squeeze jobs," gun perforating, directional drilling and many others are devices of very recent knowledge and have made possible modern production-control practices. Without this kind of knowledge developed by the petroleum industry itself, the requirements set forth in recently enacted state conservation laws could not have been written, nor could the rules and regulations now used in the administration of them have been formulated. The result has been a closer cooperation between the industry and the state regulatory bodies.

In view of the progress that has been made, is there a necessity for federal control of the petroleum industry? Chairman Cole, of the special investigating committee, disclaimed authorship when he introduced the measure by request of the president. The president merely asked a study of the subject. So far as this study has gone it has undoubtedly been very helpful. The investigation is being conducted in a fair and unprejudiced manner with a view to bringing out all the facts about unnecessary waste in the production of oil and gas, and the progress which has been made to prevent such waste.

The conservation objectives set forth in H.R.

7372 are heartily approved throughout the petroleum industry; however, the bill follows rather than leads the industry in proclaiming them. The development of production technique in the last few years has brought these objectives measurably near to realization.

●

Enormous Waste of Resources Will Have to Be Curbed

By Harry D. Fruecauff

Vice President, Petroleum Advisers, Inc., New York

IT would seem to me that the prime objective for the petroleum industry for 1940 should be the creation and putting into operation, either of a trade organization or individual effort, or an allied legally supervised activity that would enable us to handle the business of operating with a fast-dwindling natural resource to the best interest of this and future generations. Unbridled production, ungoverned refinery runs, and enormous stocks of products with their financial and physical waste, are an awful slam at the brains of a big industry.

The technical knowledge in the industry, plus further development of it, can certainly obtain many products, as well as a large potential gasoline supply, out of that portion of the barrel of crude being sold in ridiculous competition with natural gas and coal, other fast-dwindling natural resources. Individually this seems an impossible problem, but collectively it can be made a most effective means for the proper use of nature's own resources.

To work as an industry for the good of the public with private initiative and reasonable, private remuneration, this generation as well as the next, and this nation as well as the world, would be greatly improved.

There are untold values in that part of a barrel of crude that is being used now to heat homes and plants.

●

Bring Economics Into Step With Technical Advances

By Frank Buttram

President, Independent Petroleum Association of America

PROPER objectives of the petroleum industry in 1940 indicate that efforts of the industry must be applied in several directions. The interests of the industry and the consumer are parallel in that it is paramount to all that there should be a sound conservation program. Sound conservation means operating in a manner to provide the most oil for the longest period of time at reasonable prices. The obligation to furnish adequate supplies at reasonable prices has been met in the past, and material progress has been made in improving quality and in conducting operations to secure the greatest possible amount of petroleum from the known reserves.

In technology the industry has made great progress. Further progress is necessary to bring economics into step with technology. Sound conservation necessitates an adequate price for crude petroleum with reasonable profits to the producer. This over a long period of time is to the best interest of consumer and producer.

The principal objective for the coming year should be accomplishment of those things essential to make effective a permanent, assured and effective balance of supply with demand.

Immediate steps should be taken to reduce excessive stocks of gasoline. Crude-oil production is too great. Excessive stocks result in waste and are also detrimental to the economic stability and welfare of all.

There are other matters subsidiary to the general objective outlined. Much is heard with reference to federal regulation. Undoubtedly the majority in the industry prefer to continue on the present program, believing that the industry, aided by state authorities, will more effectively solve problems as they arise than can a federal bureau thousands of miles removed.

●

Pennsylvania Situation Is Encouraging for 1940

By Ralph T. Zook

President, Sloan & Zook Co.

ALL indications in Pennsylvania are for a continued strong lubricating-oil market and higher crude prices during 1940. The overproduction of crude and lubricating oils was liquidated during 1938 and in the early part of 1939, allowing the industry to come into a strong statistical position during the latter part of the past year. While undoubtedly part of the advance in lubricating-oil prices has been due to war buying, they had reversed their downward trend previous to the declaration of war and the buying in connection therewith simply accelerated the rate of advance.

While the refiners' margin was on the minus side of the ledger from the fall of 1937 until the fall of 1939, this condition has been more than corrected and operating margins should be generous at this time. Fortunately the advance in lubricating-oil prices came at a period when new contracts were being considered for 1940 and it has been possible to take into consideration the stronger crude and refined market when making them for the present year. The great danger in the present situation is the one that has taken place so many times in the Pennsylvania industry, i.e., the loss of our domestic markets to competitive oils when lubricating-oil prices are within their present range. The present situation is, however, a strong factor in maintaining Pennsylvania as a premium product which is necessary to assure a crude price sufficient to adequately protect the immense crude reserves in the area, the life of the producing, refining, and marketing branches.

The estimated demand for crude for 1940 is in the neighborhood of the present producing rate and present production is only maintained at this rate by a large quantity of crude from the flush Music Mountain area. While there is a difference of opinion as to the reserves in this area, it is generally admitted that unless new areas are developed the Music Mountain area cannot produce at its present rate during 1940.

Lubricating-oil sales and in turn the crude demand for this area are directly related to general business and if general business suffers serious reversals, the Pennsylvania industry in turn will be subject to the same penalties as other business. However, there can be a considerable decrease in business activity below the present level before there is any danger from surplus crude or refined products and I can see nothing at this time but strong crude and refined markets during 1940.

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Conservation Law in Illinois Would Be Helpful

By W. S. Farish

President, Standard Oil Co., N. J.

IT is impossible to review business in 1939, or guess what it will be in 1940, without attempting to appraise the effect of war demands. General expectation of large foreign increase has not been realized. In consequence, plans have necessarily been materially changed. Indicative of the uncertainty in planning under today's conditions is the increase in tanker freight rates of over 200 per cent since the end of August.

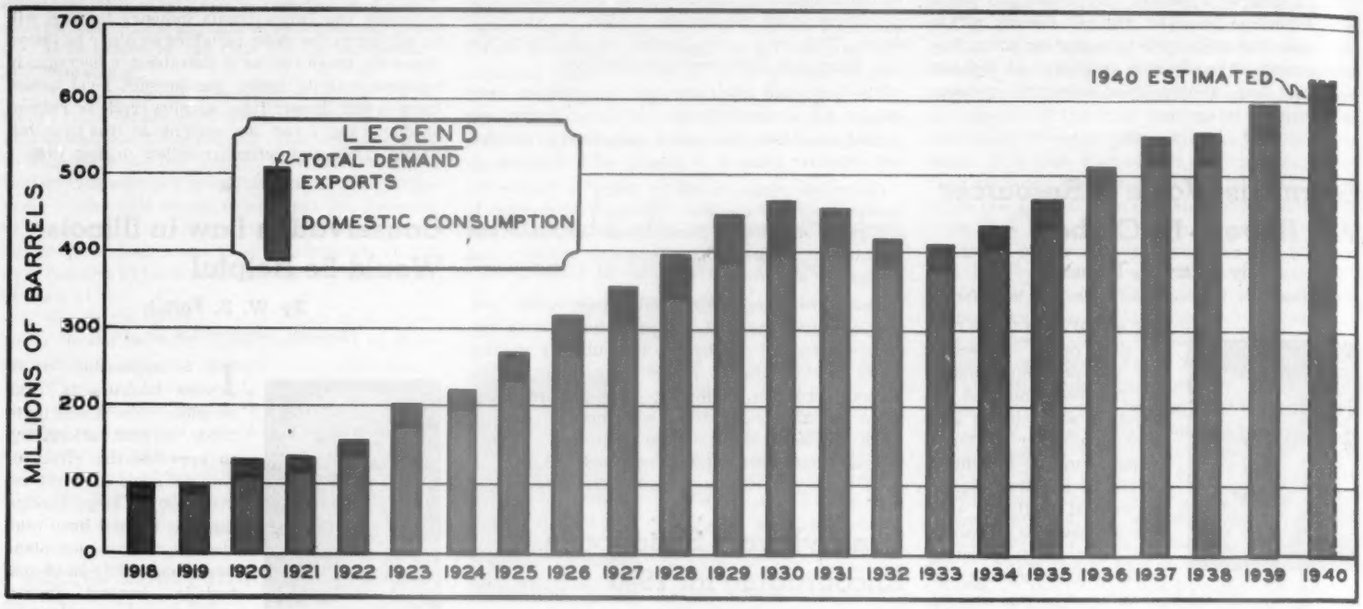
As the record of petroleum consumption in the World War was phenomenal, it was logical for most of us at this time to expect substantially increased demands. That this has not occurred is due to several reasons. Most important is the limited degree of war activity. Another is the severe restriction placed on use of oil products in all Europe. Still another is the loss of exports to Germany.

The crude-oil supply situation is in a generally healthy condition. For the second successive year there was a substantial draft on stocks above ground. Present supplies appear to approximate more closely the quantities needed as working inventories. The 36° Oklahoma and Kansas crude-oil price dropped to an average of $1.02 per barrel as compared with $1.17 in 1938. This resulted primarily from the dislocation of the supply and demand situation caused by the production of 93,000,000 bbl. in Illinois as against 24,000,000 bbl. in the preceding year. To force an outlet for this crude, not only were prices posted at levels below those required to meet competition from other major sources of supply, such as the Mid-Continent area, but in addition large quantities were sold at a considerable discount below the posted price. Another influence that undermined crude prices was the movement of as much as 200,000 bbl. daily of Arkansas, Louisiana, Texas and other crudes at prices below the general market.

To avoid waste and improve the efficiency of the producing effort, it is to be hoped that Illinois will pass a conservation law. This, together with the efforts of the conservation authorities on the other oil states in preventing waste will avoid excessive production.

It looks as though 1939 net earnings for the United States industry are well below those of the preceding year. Preliminary reports for the first three quarters showed decreases averaging about 40 per cent, but the final 3 months will be much better.

The outlook for 1940 is fairly good. Earnings should be benefited if Illinois adopts a conservation program, as uneconomic overproduction in that area would be curtailed. The effect of the war is highly problematical, but it now appears unlikely that there will be any noticeable broadening in the demand for petroleum exports in the near future.



Gasoline demand in the United States since 1918 with 1940 estimated

DEMAND --Past & Future

By C. O. WILLSON

TRENDS in demand for petroleum which had been under way for several years continued in 1939 and so far as can now be determined will extend through 1940.

Consumption of petroleum as motor fuel ranging from the lowest-gravity fuels of the stationary diesel engines to the low-boiling aviation fuels established new records the past year and still greater records are predicted for 1940.

The same situation applies to all refined products consumed as heating oils—classified as gas oils, distillates and kerosenes.

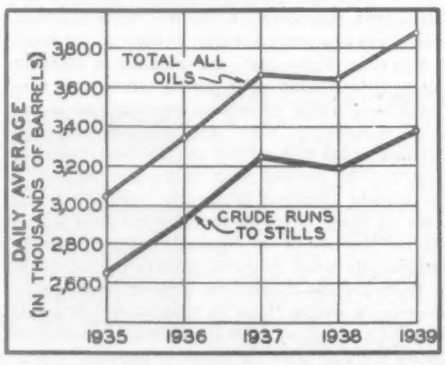
The consumption of residual fuel oils and lubricants showed large gains in 1939 over 1938 and smaller gains are in prospect for 1940.

The accompanying charts and tables give the demand for the principal refinery products for the 5-year period ending January 1, 1940. On Page 219 the latest Bureau of Mines report summarizes supply, demand (domestic and export), imports, and stocks of crude oil and refinery products for the first 11 months of 1939 compared with the same period in 1938.

These data reflect developments in consumption of products which explain why petroleum occupies a stronger demand position than any other major industry.

The fact that there were more motor vehicles in operation and that their engines consumed more petroleum fuel per unit explains the 30,000,000-bbl. gain in gasoline consumption last year in the United States. An assumption that this trend will continue is the basis for the prediction that the 1940 increase will be at least as large.

Leaving gasoline exports, which will be largely determined by the course of the European war, the same as last year, these motor-vehicle projections indicate a total 1940 demand for gasoline of at least 627,000,000 bbl. Export gasoline sales are dependent on rationing policies in Europe, intensity of war, shipping conditions, and developments in sources of petroleum supplies outside the United States. Gasoline inventories at the start of this year were said to be 10,000,000 bbl. too high. Should this situation be corrected in whole or in part, the amount of the reduction would be subtracted from the total projected gasoline requirement for 1940.



TOTAL DEMAND ALL OILS

Year—	
1935	3,048,400
1936	3,346,000
1937	3,678,000
1938	3,646,000
1939*	3,900,000

CRUDE RUNS TO STILLS

Year—	
1935	2,646,000
1936	2,919,600
1937	3,242,300
1938	3,191,800
1939*	3,386,000

*December 1939 estimated.

The percentage gains in consumption of kerosene and distillate last year and over the past 5 years have exceeded those of gasoline. Available reports show that the consumption of these products as heating oils is increasing rapidly.

In the same general classification of heating oils are the heavier distillates and gas oils used as furnace oils for heating homes and many other types of buildings. The number in operation is increasing yearly.

The motor-fuel demand for kerosene, distillate, and gas oil is also expanding rapidly. This outlet includes the numerous types and applications of diesel engines, for which varying grades of the low-gravity motor fuels are required.

Complete reports on the installation of units consuming kerosene, distillate, and gas oil are not available from which to project 1940 requirements for these oils. With the exception of 1938 the average yearly increase over the past 5 years in consumption of distillate and gas oil has been about 20,000,000 bbl., and in the case of kerosene, 5,000,000 bbl. It appears at this time that these average increases could be accepted as the probable gains for 1940.

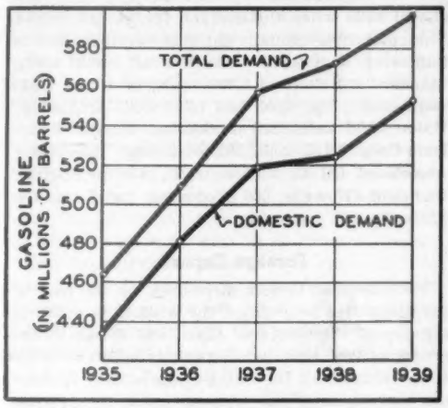
Residual Oils

The demand for residual fuel oil increased in 1939 following the 1938 slump. The demand for low-gravity fuel more closely parallels general business conditions than is the case with the products previously discussed and the demand trend in recent years has been sidewise. This is shown by the fact that while the 1939 domestic demand for gasoline was 44 per cent greater than in 1929 and kerosene more than 60 per cent greater, the sales of residual fuel oils are now

running slightly less than they were 10 years ago.

It is not believed that the 1940 demand for these residual oils will show much change from the 1939 levels. The demand comes largely from the marine trade, industry, railroads, and public utilities, all of which, in their operations, are sensitive to fluctuations in general business conditions.

As a result of the improvement in industrial sales and large gains in export shipments following the start of the war, total sales of lubricating oils increased approximately 15 per cent last year. In contrast to motor fuels, the trend in motor-oil consumption per car in recent years has been downward. So has that of industrial oils, both developments being a reflection of improved oils and mechanical appliances which enable consumers to prolong the use of the lubricants. This is indicated in the fact that the 1939 domestic consumption of lubricants was less than in 1929. With these trends in mind most statisticians are pro-



GASOLINE

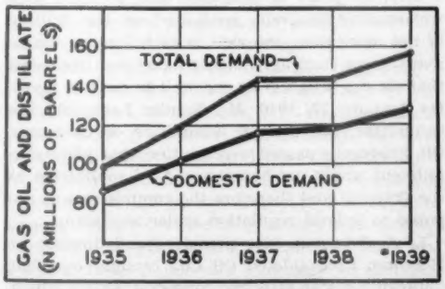
Year—	Domestic demand	Total demand
1935	434,810	465,423
1936	481,606	510,252
1937	519,352	557,658
1938	523,003	573,112
1939*	553,000	597,000

*December 1939 estimated.

jecting the total demand for lubricants at approximately the 1939 level.

Demand For All Oils

The substantial increase in the 1939 consumption of all the principal refinery products resulted in a total demand for all oils of approximately 1,423,500,000 bbl., or 3,900,000 bbl. daily, in 1939. Of this total 86.5 per cent was absorbed by domestic markets and the remainder in export channels. All of the 1939 gain was accounted for



GAS OIL AND DISTILLATE

Year—	Domestic demand	Total demand
1935	86,028	102,277
1936	102,757	123,205
1937	116,841	146,970
1938	117,449	147,090
1939*	132,000	164,500

*December 1939 estimated.

1939 AND 1940

1939 shipments of all oils in the United States averaged 3,900,000 bbl. daily, a new record and a gain of 7 per cent over 1938.

1940 demand for these oils will average at least 4,100,000 bbl. daily and domestic crude-oil producers will be called upon to supply 90 per cent of this total.

1939 domestic shipments of gasoline more than offset a small decline in exports so that a total gain of 24,000,000 bbl. established a new yearly record of 597,000,000 bbl.

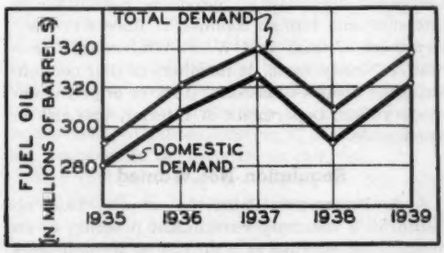
1940 domestic and export demand for gasoline will show an increase of 30,000,000 bbl. over 1939.

1939 shipments of kerosene, distillate and gas oil—largely utilized as heating oils and tractor fuels—increased 23,000,000 bbl. with a record yearly consumption of 235,000,000.

1940 demand for kerosene, distillate and gas oil will show an increase of 20,000,000 bbl.

1939 gains in shipments of residual fuel oils and lubricating oils were respectively 10 and 14 per cent.

1940 demand for these products will show small gains over 1939.



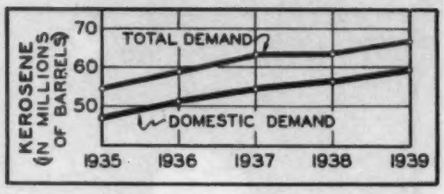
RESIDUAL FUEL OIL

Year—	Domestic demand	Total demand
1935	280,695	293,394
1936	307,884	322,319
1937	325,514	340,818
1938	291,833	309,753
1939*	322,000	340,500

*December 1939 estimated.

by the expansion in domestic markets, as export shipments were slightly less than in 1938.

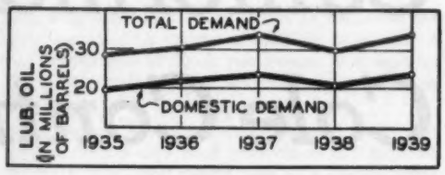
This peak 1939 demand of 3,900,000 bbl. daily for all oils was supplied as follows (December estimated): Domestic crude-oil production, 3,445,000 bbl., 88 per cent; natural gasoline, 135,000 bbl., 3.4 per cent; imports of crude oil and refinery products, 164,000 bbl., 4.2 per cent; withdrawals from storage of crude oil and refined products, 140,000 bbl., 3.6 per cent, and the remainder by



KEROSENE

Year—	Domestic demand	Total demand
1935	47,645	54,296
1936	51,428	58,364
1937	54,972	63,858
1938	56,360	63,864
1939*	61,000	69,500

*December 1939 estimated.



LUBRICATING OIL

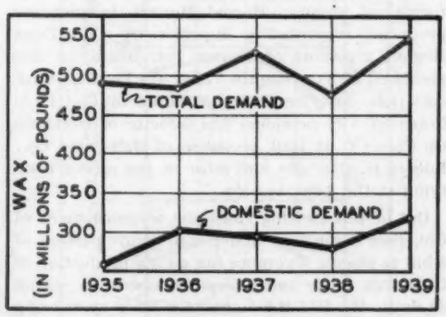
Year—	Domestic demand	Total demand
1935	19,661	28,160
1936	22,323	31,014
1937	23,323	34,298
1938	21,248	30,665
1938	21,233	30,650
1939*	23,500	35,000

*December 1939 estimated.

miscellaneous oils, including benzol, a byproduct of the coal industry.

1940 Demand

At this time it appears that the demand for all oils in 1940 will average close to 4,100,000 bbl. daily. This estimate is based on the increased domestic demands for refinery products previously explained, with total exports the same as in 1939. It also assumes that the withdrawals from crude-oil storage in 1940 will be substantially less than in 1939. A possible disturbing feature in 1940 ex-



WAX DEMAND (pounds)

Year—	Domestic demand	Total demand
1935	261,353	491,258
1936	301,488	488,830
1937	297,288	529,011
1938	278,532	479,979
1939*	320,000	550,000

*December 1939 estimated.

ports is the present threat that the trade agreement of the United States and Japan, in effect for many years, will be ended, resulting in a loss of the important Japanese oil market to the California industry.

The estimate of 1940 demand also provides for a 20 per cent increase in imports as a result of the Venezuela trade agreement, which became effective last month. The natural-gasoline supply is estimated to be the same as in 1939.

Gov. Culbert Olson of California testifying before Cole committee at Los Angeles, January 16, 1940. Seated at table are the following congressmen: W. F. Wolfenden, Pennsylvania; Robert Crosser, Ohio; Edward A. Kelly, Illinois; William P. Cole, Maryland; C. A. Wolverton, New Jersey; Clarence F. Lea, California; Herron Pearson, Tennessee, and P. G. Holmes, Massachusetts

California Opposes Cole Control Bill

By L. P. STOCKMAN

LOS ANGELES, Calif., Jan. 22.—Gov. Culbert Olson of California, the first witness at the hearings of the Cole subcommittee in Los Angeles, January 16, told the committee that: "Any oil-control bill, whether state or national, is not favored by a majority of the people of California" and that: "Oil and gas and its products have become as much of a public utility and impressed with the public interest as any other recognized public utility but if the people decide, and they have decided with respect to the Atkinson oil-control bill, that we should not recognize it as such, then there should be no governmental control of production, refining, distribution, or marketing of oil and gas and their products." This same position was taken by Lawrence Vander Leck, chairman of the Central Committee of California Oil Producers; by L. L. Aubert, chairman of the allocation committee of the Central Committee; J. R. Pemberton, California oil umpire; Harold Morton, independent producer, representing Superior Oil Co.; Dana Hogan, president of Hogan Petroleum Co. and president of San Joaquin Valley Oil Producers Association; John Beddow of Wilshire Oil Co.; L. A. Cranston, vice president and director of Honolulu Oil Corp.; C. B. Hall, president of Hall-Baker Co.; Robert H. Garrison and most of the others testifying at the 3-day session.

Out of this hearing came the announcement of Governor Olson that he hopes to secure passage of a bill to place a severance tax on the production of California crude and have it in operation within 30 days. He told the committee he is sponsoring this tax as a conservation measure but it was apparent few of the 250 operators present were in complete accord with this program.

Governor Olson told the committee, "There is a conservation measure, which it seems that no one engaged in the oil-producing business or receiving royalties from oil production is out actively supporting, and that is a severance tax on the oil and gas produced in California which I am recommending to a special session of the California Legislature that meets on January 29. This tax which will be not only in the interest of conservation, but one which all taxation experts agree is a fundamentally sound basis of taxation, and one that has been adopted in other oil-producing states. I am hoping those engaged in the industry will cooperate to meet the state's requirements for new revenue by not opposing a reasonable severance-tax bill."

Governor Olson made no attempt to hide his displeasure at the defeat of the Atkinson measure and on interrogation by one member of the committee, said: "The Atkinson bill gave me authority to regulate the price of refined oil to consumers. I would like to have had the privilege of demonstrating its effectiveness."

At one point Chairman Cole pointed out that President Roosevelt wants the oil-producing states to control and regulate the industry but that if the states fail to carry out their duties the federal Government should do so. This brought a rapid response from Congressman Holmes, Republican of Massachusetts, who succeeded the late Representative Mapes on the Cole committee, that remote control has been developed to such a high degree in Washington that the federal Government is trying to run all business by remote control; his statement that governmental interference and regulation of business must stop, brought prolonged applause.

The hearing was attended by Clarence F. Lea of California, chairman of the House committee on interstate and foreign commerce; Robert Crosser, Democrat of Ohio, and W. F. Wolfenden, Democrat of Pennsylvania, as members of that committee. E. B. Swanson, assistant director of petroleum conservation, Department of Interior, was also in attendance.

Regulation Not Wanted

J. R. Pemberton, California umpire, held up California's voluntary curtailment program as an outstanding example of what can be accomplished under proper conditions and with the assistance of producers. The voluntary control now employed in California works better and is elastic enough to adapt itself to changing conditions. He claimed it is the fairest method of curtailment in the country and compliance is nearly ideal. He thought voluntary curtailment works with less friction. He could see no need for a state law, under present conditions, and while he favored the interstate compact, he does not favor federal regulation of any kind.

In reply to Congressman Wolverton, Mr. Pemberton said that despite his previous testimony which indicated he was favorable to federal regulation in 1934, he had changed his ideas after observing N.R.A. and curtailment in other states, together with the success of the present program in California.

The uniform method of allocation in California was put into effect in June 1939, about the time the legislature was considering the Atkinson oil-control bill. The Cole committee wanted to know if this plan was submitted to remove any necessity for state control and why the curtailment program was working so successfully since that time.

Mr. Pemberton testified that underground waste is an intangible factor and can not be completely determined from an engineering standpoint. He said allotted production is sometimes shifted to wells of high gas-oil ratio when the demand for gas was highest and later shifted to wells of low gas-oil ratio when the demand for gas decreased. The committee brought out that seven majors in California own 9,873 wells out of 18,621 wells. Standard Oil Co. had 3,308 wells, of which 1,955 were producing; Shell had 1,393 wells producing; Union 1,175 wells, 829 producing; General Petroleum Corp., 1,162 wells, 781 producing; Tide Water Associated Oil Co., 1,580 wells, 856 producing; Richfield 477 wells, 366 producing, and Texas Co. 778 wells, 637 producing.

Foreign Exports

There seemed to be a disposition on the part of the committee to question the wisdom of continuing export shipments to Japan and Russia. Congressman Wolverton was especially insistent. With L. A. Cranston on the stand, Congressman Wolverton replied, after the witness stated the restriction in exports might throw men out of employment: "Do you mean you favor sending oil to Japan to be used in the slaughter of Chinese and to Russia for use in bombers to bring the Finns into subjection? You are not arguing that to keep people employed here we should aid in killing Chinese and Finns abroad, are you?" Congressman Wolverton also charged that the State of California would appear tied up with Nazi Germany and communistic Russia because it allows its royalty oil, principally from tideland accumulations, to be shipped to these warring countries.

Curtailment Operation

Lawrence Vander Leck said the Central Committee of Oil Producers has been making a study of the possibility of reducing drilling operations and will attempt to restrict drilling during 1940 if at all possible. Present production practice has reduced subsurface waste to a great extent, and formerly where four or five wells were drilled to 1 acre, 10 years of education has resulted in a well-spacing program predicated on the drilling of not more than one well to each 5 acres and in many cases field agreements have been approved that set the program at one well to each 20 acres. On January 12, 1940, Mr. Vander Leck told the committee, the Central Committee of California Oil Producers passed a resolution that state curtailment would not be enhanced by application of the Cole bill and therefore the committee was opposed to federal regulation under any form.

L. A. Cranston, vice president and director of Honolulu Consolidated Oil Co., brought out that California has an effective conservation law which prohibits gas waste, provides for control of gas-oil ratios, prohibits improper drilling or abandonment of wells, provides for proper keeping of records of drilling and production, and which permits operators to enter into unit and cooperative agreements.

(Continued on Page 75)

Engineers Tell Why

Octane Number Does Not Fully Indicate Road Performance

By W. T. ZIEGENHAIN

DETROIT, Mich., Jan. 19.—Refinery technologists at the annual meeting of the Society of Automotive Engineers are convinced that passenger-car engines of the future will be designed to utilize motor fuels of gradually increasing antiknock value. Note they do not speak of the octane value any longer, but call it something else, as "antiknock" value or "performance" value. This is coming about because there is no standard method for testing motor fuels of all kinds and certainly any of the tests in use is subject to criticism when the results of any one are checked with the performance of the same test gasoline in all types of motor cars in all forms of service. "That inconsistencies arise is to be expected," was the manner in which one technologist stated the problem, going on to ask, "Are we not expecting to learn too much from that one-cylinder laboratory test engine if we ask it to tell us how every kind of motor fuel will perform in every kind of car in every kind of service?" The silence which followed indicated the thought was not in conflict with the ideas of those present but did not stop them from presenting their views in an effort to find a correlation between laboratory results and road results.

Ten motor-fuel authorities presented data in a symposium on "Detonation Performance on the Road." Note again octane number does not appear.

Dr. A. E. Becker, in collaboration with G. H. B. Dairs, both of Standard Oil Development Co., presented data to show that differences in fuel volatility will account for differences in the octane numbers when measured in a single cylinder in the laboratory and then made to perform in a multicylinder motor on the road. He mentioned the earlier work of Bartholomew, Chalk, and Brewster, who first pointed out that in a multicylinder engine a slightly different quality of air-gasoline vapor enters each cylinder due to a portion of the higher boiling-point fractions depositing out of the air-fuel mixture as this mixture passed through the manifold.

Dr. Becker said his laboratory sought to determine the effect this "dropping out" of heavy motor-fuel fractions had upon the performance of the fuel as measured by knock tests in the laboratory and on the road. This was doubly important since it is known that, as the partial separation of the heavy and light fractions takes place in the manifold and since all of each fraction is consumed in the motor, it becomes self-evident some cylinders receive a relatively rich proportion while others receive a relatively lean proportion. Thus, it becomes necessary to correlate fuel-volatility results with octane ratings if a complete understanding of results in a single-cylinder laboratory test motor is desired.

In determining the effect of volatility upon knocking, he said four experimental fuels were prepared. The characteristics of these fuels are shown in tabular form. An effort was taken to choose fuels of widely different sources but which showed about the same volatility characteristics and octane ratings. They differed, however, in the distribution of antiknocking properties throughout the fuel's boiling range.

High-octane-number fractions were used for the intermediate portions of Fuels 1 and 4, whereas the last 10 per cent was, in each case, of very low octane number, the two differing from each other in that Fuel 1 was of high and Fuel 4 of low sensitivity. Fuel 3 contained intermediate fractions of low octane number, whereas the first 35 per cent was the same as that for Fuel 1 and the last 30 per cent was of very high octane number. Fuel 2 was prepared from fractions of as nearly the same octane number as possible. Thus Fuel 2 should be insensitive to any distribution effects, whereas the other three fuels should be very sensitive to such effects as the octane numbers change very rapidly from 70 per cent to 100 per cent.

These fuels, together with a number of other commercial and experimental fuels, were tested in four cars, a 1939 Buick 40, a 1938 Chevrolet, a 1938 Ford 85, and a 1938 Plymouth. These permitted testing in one straight-eight engine, one V-eight, and two six-cylinder engines.

To obtain temperature control, these tests were conducted in an electric chassis dynamometer room. Ratings on the road are obtained when accelerating from 10 to 50 miles per hour with wide-open throttle.

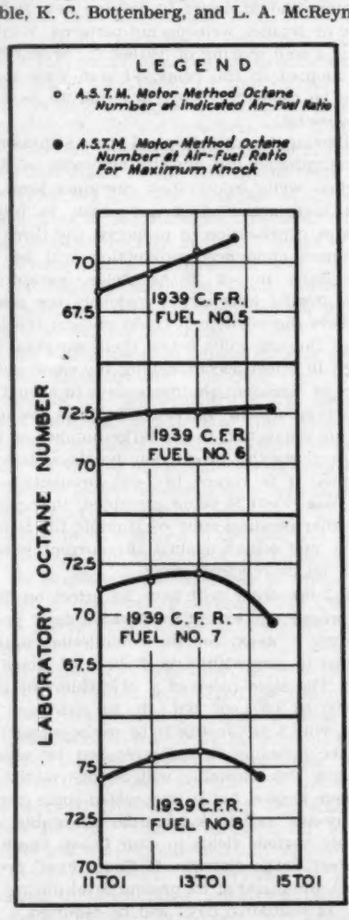
With this accomplished, the entire cycle of acceleration, deceleration, and idling at 10 miles per hour was made automatic by controlling the throttle with a solenoid actuated by an electric timer. With the road acceleration reproduced in the laboratory, engine temperatures were adjusted to be comparable with those existing at the corresponding atmospheric temperature on the road.

Each fuel was tested in each of the four cars at 70° and 95° F. Without attempting to give the detailed results here it is obvious that good correlation between car and laboratory ratings is not obtained either with the A.S.T.M. or the C.F.R. research ratings of the fuels as a whole.

It was then decided to test the conclusions arrived at from an analysis of the distribution problem and bled manifold results by determining the octane numbers of various overhead cuts. Since any fractionation that occurs in the manifold of a multicylinder engine must necessarily be poor, it was decided to use a still which would give as little fractionation as possible. Accordingly, a pot still of cast iron with an insulated bulb column and with the vapor outlet about 14 in. above the still was used. A charge of 3,000 cc. was used. A distillation rate of 20 cc. per minute was used for the first 600 cc., after which the rate was increased to 90 cc. per minute.

Abstracts of S. A. E. papers presented at Detroit meeting will be found on Page 205

To further explain discrepancies in motor-fuel octane ratings and road performance, Harold M. Trimble, K. C. Bottenberg, and L. A. McReynolds, of Phillips Petroleum Co., reported on work that company had done. This included the performance of four C.F.R. fuels (5, 6, 7, and 8) in 18 cars of late design including Chevrolets, Fords, and Plymouths and over a range of air-fuel mixtures from 11 to 1 to 15 to 1.



The results are shown in simplest form by use of a graph which depicts the performance of the 1939-model cars over the stated range of air-fuel mixtures. By referring to the graphs it becomes apparent that octane ratings of fuels are substantially affected by changes in the air-fuel ratio. Difference of several numbers is shown even within this range.

(Continued on Page 214)

Texas Operators For 20-Acre Spacing

By D. H. STORMONT

FORT WORTH, Tex., Jan. 22.—An almost unanimous opinion was voiced by operators at the state-wide proration hearing, held in Austin Thursday, that the Railroad Commission adopt a state-wide spacing order requiring fields be developed on the basis of 20-acre proration units until special field rules had been adopted. Most operators, however, objected to the commission's proposed spacing rule of 467-933 ft. as being too rigid and not permitting sufficient flexibility if operators should desire to develop new fields on wider or smaller well-spacing patterns. Many felt that if a well spacing of 330-660 ft., or 330-990 ft., was adopted in the proposed state-wide rule, it would be easier to revert to either 10 or 40-acre well spacing.

Following Attorney General Mann's opinion that the commission can cut the allowable of above-marginal wells below their marginal limit, provided such action does not result in physical waste or confiscation of property, the three commissioners announced production will be on a 7-day basis in all Texas fields, except East Texas, during February. Previously the commission held the position it could not cut the allowable of flowing wells below their marginal limit, though in effect accomplishing the same purpose by use of sufficient shutdown days to keep Texas' production within Bureau of Mines estimates. Growing opposition to the large number of fields exempt from the production holidays, however, prompted it to return to 7-day production. The East Texas field is being exempted, they said, in order that pending suits of Humble Oil & Refining Co. and others against the current schedule would not be rendered moot.

The 7-day order will have no effect on Texas' total production, except to spread 5 days' production over a week, for the commission stated it intended to stay within the Bureau of Mines allocation. The state received a 39,600-bbl. cut (from 1,411,000 to 1,371,400 bbl.) in its February allocation, which is causing it to revise slightly the tentative schedule it had prepared in advance. Just how the allowable will be distributed was not made known, but it is expected some districts will receive rather substantial allowable cuts, probably various fields in Gulf Coast, Southwest and West Texas districts. If East Texas' production is maintained at its present level during February, 12 shutdown days will be required.

Following the meeting members of the commission stated the February proration order would not be issued until January 25; also, that no decision would be made on the proposal for 20-acre spacing in new fields until after the new order is issued.

Attending operators generally approved the commission's announcement that the state's allowable at the first of the month would include every barrel of the bureau's allocation, and that no increases would be granted during the month unless they were of an urgent nature. In recent months the commission has set the first-of-the-month allowables below the bureau's figure, and during the month granted allowable increases to fields claiming higher market demand. This resulted in numerous hearings and caused some discontent among operators in fields not granted higher allowables. By setting the state's top allowable on level with the bureau's figure, the commission will be in a better position to defer raising a field's allowable until a new state-wide order is issued.

Greater part of the hearing was devoted to discussion of the proposed 20-acre spacing plan. R. E. Hardwicke, Fort Worth attorney, said he favored the 20-acre plan and also urged pooling of small tracts which he felt the commission has the power to do. Commissioner Jerry Sadler, however, stated the latter was not enforceable, according to a ruling from Attorney General Mann. Among others who favored the wider spacing, but objected to the proposed spacing of 467-933 ft., were E. A. Landreth, of Landreth Production Co., Fort Worth; Edward R. Hudson, of Emperor Oil Co., Fort Worth; and Paul McDermott, Sinclair Prairie Oil Co. The latter took the stand that the rule was arbitrary and failed to take into account variances in the porosity and other properties of oil reservoirs; that a 20-acre proration unit with 330-660-ft. spacing rules would give operators greater flexibility in developing new fields.

Charles F. Roeser, Fort Worth, suggested the commission require that, before a wildcat could be drilled, the operator furnish it a plan of development and an order be adopted regulating spacing, based on the expected depth of the pay. Should the operator find the pay at some other depth, the spacing pattern could then be corrected accordingly.

Want Higher Allowables

Only little testimony was offered by operators of the various districts in regard to petitions for higher allowables. George Strake, Conroe operator, placed a vigorous request for a higher allowable in that field; Phillips Petroleum Co. asked that the allowable of the Panhandle fields not be cut below 80,000 bbl. daily for a 7-day week during February as an active, firm demand existed for that amount; and Gulf Oil Corp. asked that the allowables of several West Texas fields be raised sufficiently to give it 8,400 bbl. daily more of oil. Gulf, represented by R. E. L. Batts, Fort Worth, stated the company needed that additional oil for normal operation of its Port Arthur refinery.

H. P. Nichols, executive vice president of the East Texas Oil Association, asked that 1 or 2 days more additional production be granted that field during February. Rice M. Tilley, counsel for Rowan & Nichols Oil Co., asked the commission to prorate the field on the basis of federal court decisions in which that company was given a higher allowable. Paul McDermott reminded the commission of the pending application for a revision in the East Texas proration formula, in which operators on the west side would be granted higher allowables. He also asked the commission to encourage the voluntary drilling of salt-water input wells by permitting the allowable of an oil well to be produced by other producers on the lease if that well were converted to an input well.

At the request of the Railroad Commission, Attorney General Mann, on the day previous to the hearing, rendered an opinion on the validity of the marginal-well law. He upheld the statute as a definite limitation on the powers of the commission, but there was nothing in the statute to prevent the commission from cutting the allowable of wells capable of producing oil in excess of their marginal limit below that limit, if such action did not result in physical waste or in confiscation of property.

Mr. Mann had been asked nine specific questions pertaining to the statute (see p. 16, January 18 issue of The Oil and Gas Journal). A summary of his views on the law follows:

"Article 6049B (marginal-well law) defines the meaning of the term 'marginal well' according to the depth of the well and the maximum producing capacity of the well under normal unrestricted operating conditions. The term 'marginal well' is restricted to pumping wells, and does not apply to flowing wells. The term 'marginal well' does not include all pumping wells, but only those wells whose maximum producing capacities under normal unrestricted operating conditions do not exceed the amounts set forth in subsections *A* through *E* of Section 1. If a pumping well has a maximum producing capacity in excess of the amount set forth in Section 1, then such well is not a marginal well within the definitions of the statute, and its production can be curtailed by the Railroad Commission, providing the commission finds such curtailment is reasonably necessary. As to wells which come within the definition of a marginal well, the commission is wholly without power to limit the production of oil from such wells.

" . . . The Railroad Commission, depending upon the relevant facts, may have the power to curtail artificially the production of a pumping well having a producing capacity of more than 20 bbl. per day and producing from horizons found at a depth between 2,000 and 4,000 ft., below 20 bbl. per day. . . . A well producing from this depth, and having a maximum producing capacity of more than 20 bbl. per day, would not be strictly a marginal well, and the commission is, therefore, not prohibited from curtailing its production, provided such curtailment is reasonably necessary under the facts. Of course, if the facts were such as to show that such curtailment would cause waste or would cause confiscation, the commission would be without power to curtail the production from such a well. . . . The relative producing capacities of wells in the same field are an important factor that must be considered in any proration order, and a proration order giving a strong pumping well a lower allowable than a marginal well would not be sustained unless it had a reasonable justification in the relevant facts."

In his opinion all of the marginal-well statute should be construed together; he stated the language of the statute is not so ambiguous as to invalidate it, nor was it invalid for any other reason. The essence of the statute, he stated, is a limitation upon the powers of the commission and not a regulation of private rights; the commission has only such authority over the production of oil as is specifically vested in it by the legislature. Findings of fact by the commission which would bring a well within any of the classifications of a marginal well are presumptively valid, he said, but they are not conclusive and finally binding upon the courts. They can be attacked by a proper appeal to the courts where they will be sustained unless such findings are found by the courts to be without foundation in substantial evidence, he said.

Compact Commission, at Wichita meeting: A. M. Crowell and O. C. Bailey, conservation officers, Arkansas; Andrew F. Schoeppel, Corporation Commission, Kansas, and new vice chairman of compact; Gov. Payne Ratner, Kansas; Col. E. O. Thompson, Texas Railroad Commission, retiring chairman of the compact; Gov. Leon C. Phillips, Oklahoma, new chairman of Compact Commission; Jerry Sadler, Texas Railroad Commission; W. J. Armstrong, proration director, Oklahoma; Hiram M. Dow, New Mexico, retiring vice chairman of Compact Commission; L. M. Hughes, Colorado representative; F. R. Frye, engineer, Michigan Conservation Commission; W. J. Holloway, Okla.

Compact Body Elects Phillips Chairman

By DAL DALRYMPLE

WICHITA, Kans., Jan. 22.—The outstanding position of Gov. Leon C. Phillips of Oklahoma, attained by his vigorous speeches in opposition to federal control of the oil industry before the convention of the Independent Petroleum Association of America and the American Petroleum Institute annual meeting in Chicago last fall, was appropriately recognized by the members of the Interstate Oil Compact Commission today in electing him chairman in succession to Col. E. O. Thompson of Texas who retired.

In accepting the honor Governor Phillips, speaking of the Cole bill, said partisan lines disappear as oil states combat "this attempt to grab power," and described the bill as an "un-American thing to do to oil states."

He said: "Oil is the only industry in the nation that hasn't had to have crutches; it had its back to the wall but was able to go on without coercion and regimentation. Federal-control legislation is unconstitutional, an invasion of states rights. The Constitution does not give the federal Government a right to come to oil states and take property. I am against the bill or any modification of it."

Governors Payne H. Ratner of Kansas, Phillips and John E. Miles of New Mexico have invited the governors of 17 oil states to appear in Washington to oppose the measure.

Governor Ratner promised to do everything possible to defeat the Cole bill as Governor Phillips and others presented a solid front against proposed federal regimentation of the oil industry. In his keynote address Governor Ratner said:

"Our problem should be to plan a defense against this unwarranted encroachment upon states rights by which we can demonstrate to the Cole committee and to the congressmen that this legislation should not be passed. No more serious calamity could happen to the oil industry or the states than enactment of this bill. Our rights would be suppressed by regimentation in its worst phase and the voice of one man would, for all practical purposes, be supreme. We who live in oil states do not propose to give Washington, or any other portion of the country, exclusive direction and control over an industry upon which our economic welfare depends."

The proposed bill, he said, "merely contains provisions to prevent physical waste within pools. It does not attempt to regulate production except where such waste is involved" and would "uselessly duplicate the conservation machinery already set up by the state."

"I am not unmindful of the fact that the federal Government has a definite place in the oil picture," Governor Ratner said, referring to the Connally hot-oil act and the cooperation of the federal Bureau of Mines in estimating market demand for oil from the states.

"Cooperation between the federal and state governments is desirable but duplication of effort is demoralizing. Duplication of regulatory effort on the part of the national Government will not lead to further cooperation by the states, and the states do not propose to relinquish the practice of conserving their own natural resources."

The Kansas governor criticized the trade agreement with Venezuela increasing oil imports from that country and asserted "its only possible effect would be to bring about a demoralization of the oil industry in this country."

Hiram Dow of New Mexico, G. A. Sadler of Texas, Lafayette Hughes of Colorado, Col. E. O. Thompson, F. R. Frye of Michigan, and O. C. Bailey of Arkansas also voiced opposition.

Export Situation

Dr. A. G. White, Washington, director Petroleum Economics Division, Bureau of Mines, declared exports are far below reasonable expectations with anticipated increases failing to materialize. Instead exports have decreased.

"This is due to the tremendous curtailment of civilian consumption in major European countries; rising delivery costs; loss of American market in Central Powers; development of production and refining in Caribbean region, and ability of the French oil industry to handle refined imports rather than crude imports," he explained. "So long as they can obtain naval fuel elsewhere under better purchase conditions than in this country, we can expect little increase in our exports. Some sudden change in war conditions may change that picture."

He said crude stocks had decreased from 311,000,000 bbl. in 1936 to 234,000,000 bbl. now, refinable crude in storage being close to the desired minimum. Broadly speaking, he said, there is no total surplus of refined stocks; stocks east of California are not unduly excessive. Domestic demand is 10 times that of 1917, and the gasoline yield twice what it was then.

H. B. Fell, in Independent Petroleum Association report, pointed out crude-oil production had been excessive since October 1 and "refinery operations had been at record levels with the result the industry started the new year with 10,000,000 to 15,000,000 bbl. oversupply of gasoline in storage.

"Gasoline stocks at the end of the year were about 81,000,000 bbl., or 10,000,000 to 15,000,000 bbl. in excess of requirements," he said. "These stocks increased rapidly in first 2 weeks of January. Crude stocks in December and the first week of January increased about 160,000 bbl. daily, indicating overproduction in both the producing and refining branches."

Colonel Thompson cited figures showing production was 32,000,000 bbl. less than the bureau's estimates for the first 9 months of last year.

Frank Buttram, president of the Independent Petroleum Association, recommended that all production be limited to actual market demand as an effective means of combating federal legislation and as an economic necessity.

"I am as much opposed to the Cole bill as anyone," he said, but he realized the industry must keep its production in hand lest it invite more attempts at government regimentation. The important matter is conservation, demanded by the public.

"State regulatory bodies must see to it that production is curtailed to demand, so the national oil picture will present no waste. I stress that if regulatory bodies will limit production to consumptive demand, thereby preventing waste, there will be no need for the Cole bill or any other form of proposed national regimentation."

Plans for the Compact Commission to fight the Cole bill were discussed at an executive session and a committee was appointed to prepare statistics, the committee consisting of Colonel Thompson, Andrew Schoeppel of Kansas, and Hiram Dow of New Mexico, to prepare data for presentation to the Cole group in Washington February 5.

Andrew Schoeppel of Kansas was elected vice chairman of the commission, succeeding Mr. Dow.

Those present were: O. C. Bailey, A. M. Crowell, Arkansas conservation officials; Colonel Thompson, Jerry Sadler, and other Texas men; Hiram Dow, A. Andreas, New Mexico; F. R. Frye, engineer, representing Michigan Conservation Commission; Governor Phillips, W. J. Holloway, Ray Weems, W. J. Armstrong, Charles Orr, Oklahoma; L. M. Hughes, Colorado; Governor Ratner, Andrew Schoeppel, Theodore Morgan and others, Kansas.

STATE CAPITALS

TEXAS

RETIRING CHAIRMAN ERNEST O. THOMPSON, of the Interstate Oil Compact Commission, previous to leaving for Wichita to attend the compact meeting, said he would make the recommendation to hold down Texas crude-oil production in March and April, because current gasoline stocks were 10,000,000 bbl. in excess of normal requirements.

Mr. Thompson, who is also a member of the state Railroad Commission, oil regulatory body for Texas, said surplus gasoline storage was a result of an almost "unimaginable" increase in the use of heating oil. Because gasoline is produced along with heating oil in processing crude, supplies of motor fuel have greatly exceeded the demands of the current low-consuming period.

He saw little possibility for greatly reducing oil production in February because of continued demand for heating oils.

In March and April, when the need for furnace oils subsides and before the big gasoline consumption period sets in, tightened production will set conditions right with regard to gasoline stocks, Mr. Thompson said.

"If the oil states do not tighten up during those months the situation will react unfavorably on crude oil," he added.

Gasoline in storage last week was estimated at more than 84,300,000 bbl., up about 10,000,000 bbl. from a year ago.

Mr. Thompson ventured the opinion a complete realization of the gasoline situation would stop oil industry "jitters" and bring statistics into balance before the period of large gasoline usage begins in May.

He announced the Texas Railroad Commission next month would ask oil corporations with Texas interests to submit under oath their storage statistics and plans for future operations. This should give a comprehensive picture, he explained, since previous requests had accounted for more than 95 per cent of the United States inventories.

The Texas production picture for February will be shaped at a conference January 25. Commissioners have indicated daily permissible allowable will be set at approximately 1,371,400 bbl., the U. S. Bureau of Mines' recommendation for market demand. The estimate is 39,600 bbl. under that of January.

CALIFORNIA

IMPOSITION OF SEVERANCE TAXES by the State of California will become a reality within 30 days if Governor Olson has his way with the legislature, which meets in special session January 29. Operators are amazed, in view of the enormous taxes now being carried by the California oil industry, that an attempt should now be made to impose a severance tax on oil and gas produced. There would be no objection to this type of tax provided a corresponding reduction was effected in some other form of tax. To make matters worse the Los Angeles City Council has had under consideration for several months a bill that would place a severance tax on oil and gas production within the city, and the Los Angeles County Board of Supervisors has at several times investigated the possibility of imposing a severance tax on oil and gas production within the county.

KANSAS

THE INTERSTATE COMMERCE COMMISSION has scheduled for February 19 a hearing in Topeka, Kans., on reduced freight rates interstate on oil products as proposed by the railroads and opposed by motor transporters.

The Kansas Corporation Commission said the hearing would be similar to its investigation early last fall of permissive reduced rail rates on petroleum shipped intrastate.

Representatives of major railroads and trucking groups in the Middle West are expected to appear for the I.C.C. hearing.

A FEDERAL COURT TEST of constitutionality of Kansas oil proration rules has been delayed at the request of attorneys for the state. District Judge Richard J. Hopkins, at Wichita, postponed trial with plaintiff's consent, after a request by counsel that the action begin within the next 30 days.

Challenging the Kansas regulations governing production of crude oil are the Bay Petroleum, Republic Natural Gas and the Tulsa Oil Corp. The companies contend the Kansas rules deprive them of production rights "without due process of law as guaranteed by the federal Constitution."

OKLAHOMA

W. J. ARMSTRONG, chief conservation officer of Oklahoma, announced that oil producers and purchasers had been called to meet at the capitol at 10 a.m., January 30 for discussion of the general oil situation in Oklahoma. In the afternoon, the Corporation Commission will hold a formal hearing to determine field allocations.

REP. PEHR G. HOLMES, of Massachusetts, who succeeded the late C. E. Mapes on the Cole subcommittee, was born in Sweden, April 9, 1881. He was brought to the United States in 1886; was educated in the Worcester, Mass., public schools, organized and owns the Holmes Electrotype Foundry, is a director in two Worcester banks. He was elected to the Seventy-second Congress and has served continuously since 1931.

ARKANSAS

THE ARKANSAS UTILITIES COMMISSION is continuing its drive to induce gas-distribution companies serving that state to purchase Arkansas gas instead of moving gas from neighboring states. In contacting the Arkansas Oil and Gas Commission, they were told that one recently discovered gas field, Big Creek, is without a market, and that other fields, principally the Magnolia field, have no outlet for casing-head gas which is produced with oil, and will be processed in the new Shell plant nearing completion. In addition to Big Creek, whose discovery well, Standard Oil Co. of Louisiana's No. 1 Petty Stave Lumber Co., which has an open potential flow of 50,000,000 cu. ft., a supply of about 40,000,000 cu. ft. daily is available from other Smackover-lime fields in the southern tier of counties.

A hearing is being called for February 19 in El Dorado, at which the Oil and Gas Commission will study producing conditions in the Dorcheat field of Columbia County, with the aim of determining whether or not the field is a gas field. High gas-oil ratios and high-gravity condensate production lead engineers to believe that the production is in the gaseous phase in the reservoir. This condition will necessitate a revision of the development program for the field, providing for greater conservation through wider spacing of wells and possibly a cooperative recycling program throughout the field.

MISSISSIPPI

GOV. PAUL B. JOHNSON of Mississippi, in his inaugural address, January 16, stressed the need for an enlarged conservation department for Mississippi, in view of the discovery of oil at Tinsley, and of the prospects for further oil development throughout the state. An amended production severance tax, and a new tax on mineral rights were also mentioned for consideration in the current session of the state legislature. Passage of a model conservation act, similar to that in effect in Arkansas, is expected during this session. The act was considered by the last legislature, without any action being taken on it.

ATTENTION OF THE MISSISSIPPI oil industry centered on Jackson last week, with the inaugural of Gov. Paul B. Johnson, and the expected consideration by the state legislature of laws pertaining to oil. Governor Johnson, in his inaugural address on January 16, advocated enlargement of the Mississippi Oil and Gas Board to cope with increased problems attending the discovery of oil in the state, and the ensuing lease and wildcat campaign. He also touched on the tax question intimating that revised severance taxes and a new tax on mineral rights should be given consideration.

MICHIGAN

P. J. HOFFMASTER, conservation director, has the authority to put oil and gas drilling and production regulations in effect without the approval of the Michigan Conservation Commission, according to a ruling by state's attorney general, Thomas Read.

Mr. Hoffmaster held a hearing on Monday to determine the rate of production in the Overisel field extension. The original field was overdeveloped, and under proper restriction the recovery of the new area should be increased 50 per cent, he said. The Oil Advisory Board recommended a 100-bbl. per well limitation.

R. A. Smith, state geologist, and Mr. Hoffmaster will represent the state at congressional hearings on the Cole bill on February 5 and 6.

KENTUCKY

KENTUCKY MAY JOIN THE STATES having regulatory oil laws. Sen. Lee Gibson, of Owensboro, on Monday introduced a bill which would create a four-man nonsalaried commission to limit and control the production of oil and gas in the state. The measure provides for permission for Kentucky to join the Interstate Oil Compact Commission.

The OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

Published weekly by The Petroleum Publishing Company at Tulsa, Oklahoma

20-Billion Backlog

The fact that proven oil reserves in the United States at the start of this year totaled nearly 20 billion barrels will come as a surprise to many within the industry. They have not realized the full significance in recent years of the widespread exploratory work, steady drilling, deeper producing horizons, and new methods of production in adding to the nation's established oil supplies.

These reserves have been expanded without the excitement and confusion that were formerly a characteristic of oil development. Except for Illinois, there has been no sensational development since East Texas.

Due to that fact, the uninformed have assumed that little new oil was actually being found and predictions of a petroleum famine have been heard at scattered points, including Washington.

Fundamentally, the change in conditions which has made possible steady additions to petroleum reserves is a reflection of the industry's new methods of operation.

New areas are constantly being found, as shown by the fact that 254 fields were discovered in 1939 and 217 in 1938, but, with a few exceptions, there has been no hurried development in any new areas.

In most cases, operators are primarily interested in establishing reserves which can be developed slowly under conservation regulations and in line with the most efficient engineering methods, taking into consideration the available markets for the oil.

There are numerous instances in which new fields were discovered and after 1 year only a few wells had been drilled. Operators are content to develop their properties slowly as conditions warrant.

The significance of this situation is seen in the fact that last year over 80 per cent of the new reserves were accounted for by extensions of fields discovered in 1938 or in previous years.

The more than 250 fields discovered last year were accorded conservative reserve valuations, based on their development up to the end of the year. As these fields are expanded they will add to the reserves reported in 1940 and later years. There are operations in which drilling programs will not be completed for 10 or more years, and reserves will not be known definitely until then.

A nation-wide survey reported in this issue also revealed the importance of new producing horizons in old fields, some of which had been producing for more than 25 years. Important shallow pays, passed up when the fields were discovered, were disclosed when modern drilling and completion methods were used. In other areas wells were deepened and more prolific sands were uncovered.

Then there are the deep pays. There are large proven reserves at depths below 10,000 ft. which could not have been reached by the drill a few years ago. Every week brings completions at these depths, adding to the industry's current production and assured supplies.

In many areas the increased reserves primarily are not accounted for by the drill, but by improved recovery methods. The application of repressuring and the perfection of various lifting methods have resulted in many of the older areas having larger reserves than 10 years ago.

This is the contribution of those who have been able to devise methods to bring to the surface more of the oil in place than formerly was thought possible.

In brief, the 20-billion-barrel backlog for future operations represents the practical application of petroleum science to the industry's operations, extending from the reconnaissance surveys of the geologist, through the new practices of the driller, to the new tools of the pumper. The end in this new technology is not in sight. It has, in fact, just started.

Natural Gasoline

Construction Proceeds at El Paso-Phillips Plant

El Paso Natural Gas Co. and Phillips Petroleum Co. have announced a joint natural-gasoline plant to handle casing-head gas produced in Langlie-Mattix areas, Lea County, New Mexico. The plant will have a capacity to treat approximately 92 million cubic feet of gas per day from which it should produce approximately 100,000 gal. of natural gasoline per day.

El Paso Natural Gas Co. will have charge of the construction and operation of the plant and will provide in the layout of the plant for a repressuring experiment in part of the area to be served. If successful, such repressuring facilities will be undertaken to repressure the entire field.

Cooperative Research Project Is Sponsored by N.G.A.A.

A study of present apparatus and procedure used in the making of low-temperature fractional analyses of both gases and liquids is being sponsored by the Natural Gasoline Association of America, according to George P. Bunn, Phillips Petroleum Co., president of the association.

The study will take the form of a cooperative project in which both member and nonmember companies will take part. Fifteen individual company laboratories will alternate in furnishing all the other laboratories with identical samples of the material to be analyzed and the resulting analytical data will be compiled and studied by the technical committee of the association under the direction of C. R. Williams, Continental Oil Co., Ponca City, Okla., chairman.

In discussing the project, President Bunn stated that the association was merely continuing its policy of trying to improve the test methods and procedure of standards within the industry. "Answers to a questionnaire circulated by the association last year," said Mr. Bunn, "indicated that there were many minor differences in analytical apparatus used by different laboratories and that there were differences of opinion on procedure. While few of these things are particularly significant in themselves, it is felt that they cause unnecessary confusion in the industry by making it difficult for laboratories to check each other exactly when analyzing identical materials. Accordingly, the association is attempting to determine the possible sources of error so that more duplicable results may be obtained."

One source of differences is being eliminated at the start through the adoption of a standard table of physical constants to be used by all participating laboratories in making the analytical calculations in the test series. Identical sample containers are being furnished by the association and a standard sampling procedure has been established. The project will probably extend over a considerable period, the first phase being concerned with natural gases and the second with the study of liquids in the natural-gasoline range.

Companies participating in the project are: Carter Oil Co., Continental Oil Co., Hanlon-Buchanan, Inc., Humble Oil & Refining Co., Indian Territory Illuminating Oil Co., Lone Star Gasoline Co., Phillips Petroleum Co., Pure Oil Co., Shell Oil Co., Inc., Sinclair Prairie Oil Co., Skelly Oil Co., Stanolind Oil & Gas Co., Texas Co. of California, United Gas Pipe Line Co., and Warren Petroleum Corp.

McAllen Plans Recycling-Project Development Program

McALLEN, Tex.—Ninety gas and distillate wells may be drilled in the McAllen area in what is believed to be an unusually large agreement between an operator and civic groups. Dr. Burton McCollum signed a leasing agreement with the city of McAllen and the McAllen Chamber of Commerce.

A block of 5,350 acres coming up to the city limits of McAllen is involved. The contract calls for development on units of 450 acres for each well. A recycling plant is included in the program. The Card discovery well, 400 ft. from the city limits of McAllen, is making 7,000,000 cu. ft. of gas and about 90 bbl. of distillate daily.

Leasing operations under direction of C. H. Swallow will be carried on from the McAllen Chamber of Commerce Building. The leasing plan was endorsed after a special city leasing committee worked on the proposition 5 months. Under terms of the contract, McAllen gets 3,000,000 cu. ft. of gas daily and can buy all the rest it wants; landowners get an upward sliding scale of lease returns up to $10 per acre.

Barnsdall Oil Co.'s natural-gasoline plant at Odessa, Tex.

Natural Gas

United Gas Pipe Line Co. Has Record Sales

Output of gas by United Gas Pipe Line Co. hit an all-time record as a result of the cold spell which has spread throughout the company territory, N. C. McGowen, president of the company, said, adding that the company was delivering gas at the rate of more than a billion cubic feet a day.

"In order to assure dependable gas service for our customers and local distributing companies we have every available employe on the job and we are drawing gas from more than 1,400 wells in the 79 different fields connected to our 6,500-mile pipe-line system," said President McGowen. "The big demand for natural gas as a result of the quick and decisive drop in temperature is being met throughout our system because of our extensive and adequate facilities, ready to meet such emergencies."

The company also had the largest December output it ever had.

Saskatoon Gas Franchise Hearing on January 31

SASKATOON, Sask.—A hearing will be opened by the Saskatchewan Local Government Board on January 31 on the application for approval of a natural-gas franchise granted by the city of Saskatoon to the Northern Natural Gas Co.

Under the new franchise agreement, delivery of gas is to be made by November 1, 1940. The project involves construction of a transmission line from the Lloydminster field and a complete distributing system. An earlier application was refused on the ground that adequate gas reserves had not been proven; but since then extensive drilling has been carried on.

THE MARKETS*

CRUDE OIL: Production increases, large and small, in Illinois, Texas, California, Kansas, Louisiana and Wyoming sent United States production up 71,210 bbl. per day to a total of 3,644,592 bbl. per day for the week ended January 20. The increase in Illinois was 31,220 bbl. per day, caused largely by big wells producing from Illinois' new source of crude, the Devonian lime. A price of $1 per barrel was posted by Shell Oil Co., Inc., in the Happytown field in coastal Louisiana, the first posting in that new field. Sinclair Prairie Oil Marketing Co., for the first time, posted a price in the Long Lake field in eastern Texas. It is $1.08 per barrel.

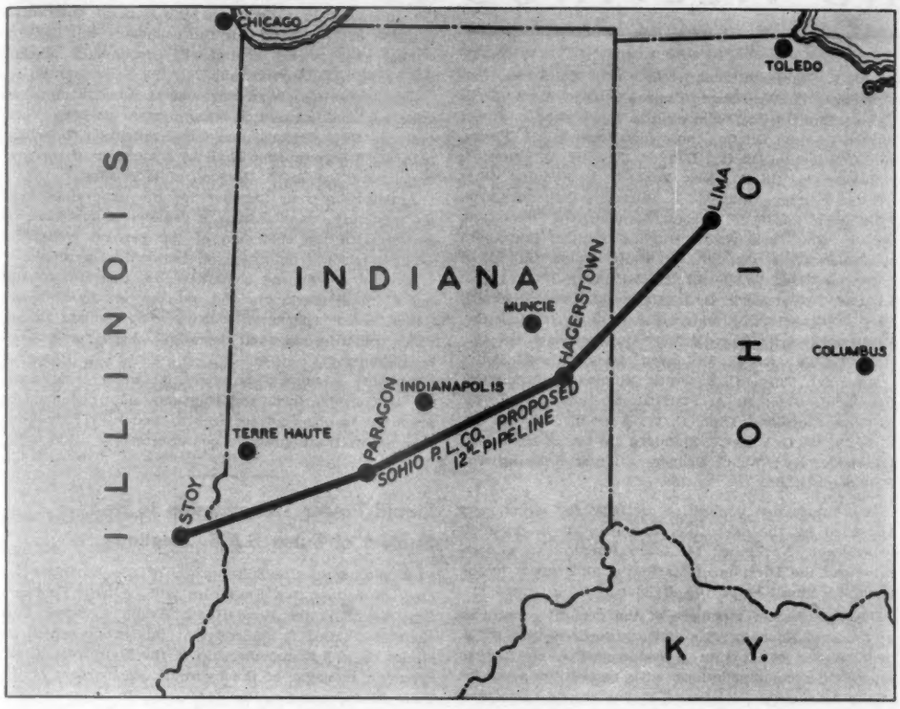
REFINERY: Fuel oils provided most of the market strength. In the Middle West and the upper Atlantic Coast region suppliers were restricting even their contract shipments, and offerings in the spot market were scant. Gasoline weak generally, with consumption curtailed by blizard weather. Lubricating oils, after rising since last August, were beginning to subside. Wax held its gains. Natural gasolines still extremely weak.

TANK WAGON AND POSTED DEALER: No changes of consequence reported.

FINANCIAL: Dullness that pervaded the stock market generally characterized the oil issues, which moved in an extremely narrow range. Losses were recorded by most of the oils. Average of 30 representative stocks for week ended January 20: High, 26.32; low, 25.48; close, 25.96. Week ended January 13: High, 27.35; low, 25.91; close, 26.03.

*Detailed information in market section.

Pipe-Line Activity



Sohio Pipe Line Co. proposed line

Laying Gas Line to Supply Town of Blanket, Tex.

FORT WORTH, Tex.—Construction has begun on a 5½-mile pipe line from the Salt Creek oil pool to Blanket to serve the town with gas. Blanket is in eastern Brown County.

Horace White and C. E. Williams, owners of the May gas system, are building the new system which will cost $13,000. White and Williams bought 145 acres of oil and gas production with a daily gas output of 2,500,000 cu. ft.

Sohio Will Build 240-Mile Line From Stoy, Ill., to Lima, Ohio

Sohio Pipe Line Co. let contracts for a 240-mile 12-in. pipe line from Stoy, Ill., to Lima, Ohio. Between Stoy and Hagerstown, Ind., the line will follow the right-of-way of the line acquired July 1, 1939, from the Tide Water Pipe Line Co. From Hagerstown the line goes northeast to Lima. Contracts for the construction of the line have been divided between two contractors each of which has 120 miles. Sheehan Pipe Line Construction Co. will build the line from Stoy to Paragon, Ind., and from a point on the Ohio State line to Lima. Truman-Smith Construction Co. will build the section from Paragon, Ind., to Hagerstown, Ind., and the Ohio State line. Work will start February 1, and it is scheduled for completion in 60 days. Pipe used will be of four different weights and it will be furnished by two manufacturers. The line is to be coated and wrapped at points where the company believes protection is necessary.

This line is of great significance to the industry as it furnishes another major outlet for the Illinois fields. In the fall of 1939, Sohio built a 75-mile 10-in. line from the Salem field to Stoy. This is the first extensive pipe-line project undertaken by Sohio Pipe Line Co. which is a subsidiary, organized last summer, by Standard Oil Co. (Ohio). Although this organization has led the parade in the purchase of Illinois crude it has moved crude through comparatively short spurs to the Illinois Pipe Line Co.'s system and to the Ohio River for transshipment in barges. Standard Oil Co. (Ohio) operates refineries at Cleveland, Ohio; Toledo, Ohio; Lima, Ohio; and Latonia, Ky.

Standard Oil Co. (Ohio) is buying more than 62,000 bbl. of crude from the Illinois basin area at the present time. Purchases are being made from various fields in the area as follows:

	Bbl.
Aden	2,500
Boyleston	600
Centralia	5,000
Clay City	3,300
Cordes	480
Cravat	140
Dix	2,150
Enterprise	170
Flora	500
Griffin	1,200
Keensburg	500
Leach	550
Louden	16,500
Mill Shoals	170
Noble	460
Noble (north)	235
Noble (south)	200
Olney	900
Patoka	1,350
Salem	16,330
Sandoval	2,630
St. James	1,620
Other fields	4,500

Sinclair Refining Company Lets K.M.A. Contract

FORT WORTH, Tex.—Sinclair Refining Co. has let contract for 66 miles of 8-in. pipe line to loop its present 6-in. line running from the K.M.A. pool of southern Wichita County to the company's Hensley station in Jackson County, all in North Texas field.

The contract was let to the O. C. Whitiker Construction Co. of Fort Worth on a turnkey job with construction to start in 10 days, and the line to be completed early in March.

Railroads Are Opposing Southeastern Line

ATLANTA, Ga.—Hearing of injunction suits against the Southeastern Pipe Line Co. (Delaware), was postponed in the federal District Court at Macon until January 29. The Southern Railway and Atlantic Coast Line filed the suits to prevent the pipe-line company's proposed Florida-to-Tennessee gasoline pipe line from crossing their rights-of-way.

Williams Brothers' Corp., the contractor building the project as a turnkey job, is proceeding with construction work, leaving work at crossings affected by the suit to be done later. The Southeastern Pipe Line Co. is owned jointly by Gulf and Pure interests.

Refinery News

Asphalt Institute Issues Revised Specifications

NEW YORK.—Revised specifications for cutback asphalts, adopted by the Asphalt Institute, have been issued in pamphlet form and are available, without charge, upon request.

This pamphlet discusses and illustrates the changes in specification requirements and presents the new specifications for rapid curing (RC) and medium curing (MC) materials, methods of tests and principal uses for cutback asphalts. It is expected that they will be widely used.

Address requests for these revised specifications (issued as Construction Series No. 51) to the Asphalt Institute, 801 Second Avenue, New York, or to its nearest district office.

Pennsylvania Refining Co. Opens Plant in Jersey City

Pennsylvania Refining Co. of Butler, Pa., has opened a branch plant at Jersey City, N. J., and announced the appointment of L. L. Long as manager, Atlantic division. Located at No. 1 Gates Avenue, the new unit is situated for truck service throughout the metropolitan New York area, which includes the northern half of New Jersey.

McColl-Frontenac Will Double Capacity of Toronto Refinery

TORONTO, Ont.—McColl-Frontenac Oil Co. is constructing a new $300,000 cracking unit at its Toronto refinery which is expected to double the output of the plant. The McColl-Frontenac company will, on February 1, under a purchase agreement made last year, take over the western assets of the Texas Corp. of Canada, including service stations and warehouses, chiefly in Alberta and Saskatchewan. It is expected the western distributing system will be gradually expanded, and that, later, refining facilities in western Canada may be provided.

Union Oil Co. Expands Refinery Near San Francisco, Calif.

Union Oil Co. is expanding the refinery at Oleum. Located on San Pablo Bay, near San Francisco, Calif., Oleum is the location of Union's propane-solvent refining plant.

New shops and change rooms for the centralization and modernization of refinery maintenance work are under construction; it is expected that the shop buildings will be completed within the next month. Construction is being carried on under contract by the Bechtel-McCone-Parsons Corp., of Los Angeles. Also under construction is the company's new polymerization plant licensed by the Universal Oil Products Co., and built by the Fluor Corp.; it will be completed within the next 4 months.

In addition to the building program now under way, plans call for the construction of a new coking plant and a hydro-forming unit. The coking plant, to be one of the largest in the country, will process approximately 14,000 bbl. per day of either heavy crude oil or fuel oil.

Construction on the coking and hydro-forming units will start about June 1 and it is expected the plants will be put into operation in the early part of 1941.

PROGRAMS AND MEETINGS

Recommendations on Marketing Before A.P.I. Committee

NEW YORK.—At a meeting of the executive committee of the American Petroleum Institute in New York, January 17, W. R. Boyd, Jr., executive vice president, presented the recommendations of a group of marketing executives and attorneys as developed at a meeting in New York on December 7, 1939.

The executive committee authorized the revival and conduct of marketing activities by the Division of Marketing along the general lines recommended, with the understanding that the procedural activity shall conform to the uniform plan of divisional organization and procedure applicable to divisions and approved by the board of directors on January 9, 1930, and the attention of the divisional general committee, appointed for 1940, was called to the following provisions of the uniform plan:

"Section VIII, Institute policies.

"No general, sectional, chapter, committee or other meeting of a division shall be authorized to adopt any resolution or take any action, other than in the form of a recommendation to the Institute, with respect to Institute or industry policy, or with respect to federal, state or municipal legislation or administration, all such action being expressly reserved to the board of directors. No action taken by any division or anyone acting for it shall bind the Institute until such action has received the approval of the board of directors, its executive committee, or an executive officer of the Institute authorized by the board or its executive committee to give approval."

The following general committee of the Division of Marketing for the calendar year 1940 was appointed:

E. V. Weber, chairman, Eureka Oil Co., Cincinnati, Ohio; W. R. Boyd, Jr., vice chairman, American Petroleum Institute; D. V. Stroop, secretary, American Petroleum Institute; W. T. Atkins, Skelly Oil Co., Kansas City, Mo.; Amos Ball, Standard Oil Co. of Indiana, Chicago; J. W. Carnes, Sinclair Refining Co., New York; J. D. Collins, Tide Water Associated Oil Co., New York; Ralph K. Davies, Standard Oil Co. of California, San Francisco; H. W. Dodge, Texas Co., New York; S. B. Eckert, Sun Oil Co., Philadelphia, Pa.; Walter L. Faust, Socony-Vacuum Oil Co., Inc., New York; W. H. Ferguson, Continental Oil Co., Denver, Colo.; H. D. Frueauff, Cities Service Oil Co., New York; C. L. Fleming, Ohio Oil Co., Findlay, Ohio; W. V. Hartman, Gulf Oil Corp., Pittsburgh, Pa.; R. T. Haslam, Standard Oil Co. of New Jersey, New York; A. M. Hughes, Phillips Petroleum Co., Bartlesville, Okla.; V. H. Kelly, Union Oil Co. of California, Los Angeles; L. T. Kittinger, Shell Union Oil Corp., New York; B. L. Majewski, Deep Rock Oil Corp., Chicago; T. M. Martin, Lion Oil & Refining Co., El Dorado, Ark.; Sam Messer, Quaker State Oil Co., Oil City, Pa.; R. W. McDowell, Mid-Continent Petroleum Corp., Tulsa; C. S. Smith, National Refining Co., Cleveland, Ohio; A. A. Stambaugh, Standard Oil Co. of Ohio, Cleveland, Ohio; C. W. Watson, Pure Oil Co., Chicago; W. G. Violette, Standard Oil Co. of Kentucky, Louisville, Ky.; W. C. Yeager, Atlantic Refining Co., Philadelphia, Pa.

The lubrication committee, activity for which was approved by the executive committee at its meeting in Chicago, November 16, is to function as a committee of the Division of Marketing and report to the general committee of the division.

The meeting of members of the general committee at Chicago, November 15, 1939, authorized Vice President Weber to appoint a conference committee to formulate recommendations with respect to activities of the Marketing Division. The conference committee was appointed as follows:

W. R. Boyd, Jr., American Petroleum Institute; J. D. Collins, Tide Water Associated Oil Co.; H. W. Dodge, Texas Co.; S. B. Eckert, Sun Oil Co.; Selwyn Eddy, Shell Oil Co., Inc.; W. L. Faust, Socony-Vacuum Oil Co., Inc.; C. E. Gately, Cities Service Oil Co.; E. S. Hall, Standard Oil Co. of New Jersey; R. T. Haslam, Standard Oil Co. of New Jersey; G. V. Holton, Socony-Vacuum Oil Co., Inc.; Roy W. Johns, Atlantic Refining Co.; B. F. Jones, Standard Oil Co. (Indiana); H. T. Klein, Texas Co.; B. L. Majewski, Deep Rock Oil Corp.; Harold B. Stone, Atlantic Refining Co.; D. V. Stroop, American Petroleum Institute; A. E. van Dusen, Texas Co.; E. V. Weber, Eureka Oil Co.; W. C. Yeager, Atlantic Refining Co.

The conference committee met in New York December 7, and made the following recommendations:

That Vice Pres. E. V. Weber should recommend to the Institute executive committee for appointment, a list of members to compose the general committee, Division of Marketing, for the calendar year 1940.

That the general committee, Division of Marketing, when appointed should:

Appoint at least four regional sectional committees with regional committee headquarters at New York, Chicago, New Orleans, and San Francisco. The chairman of each committee shall be a member of the general committee, A.P.I. Division of Marketing.

Appoint the four members of the general committee who serve as chairman of regional committees, together with the chairman of the general committee as an advisory committee on regional committees.

Appoint a standing committee on program, consisting of three marketers and two lawyers to designate topics, select speakers, prepare and regulate discussions and to recommend times and places for quarterly meetings.

Appoint a small committee, including legal counsel, to consider form and substance of a code and be prepared to offer its services to Federal Trade Commission in trade practice conference.

Liquid Power Transmission to Be Subject of Tulsa S.A.E. Meeting

A meeting of the Tulsa group of the American Society of Automotive Engineers will be held February 2 at 8 p.m. in the Mayo Hotel. Frank A. Suess, Continental Oil Co., is chairman of this group which includes the S.A.E. membership in the Southwest. R. M. Schaefer, manager of the hydraulic department of the Twin Disc Clutch Co., Racine, Wis., is to be the speaker. His subject will be, "Hydraulic Drives in Industrial Service."

Mr. Suess says: "Mr. Schaefer's paper deals with the fundamental principles of using liquid as a power transmission medium and his paper covers both the fluid flywheel principle as used by Chrysler and Oldsmobile and the torque converter which is fundamentally quite similar to a three or four-stage turbine insofar as mechanical design is concerned except that the medium activating the vane is a liquid instead of a gas, such as steam or air."

CALENDAR OF EVENTS

February

AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS, New York, February 12-15.

ILLINOIS BASIN CHAPTER, A.P.I. DIVISION OF PRODUCTION, at Emerson Hotel, Mount Vernon, Ill., February 23.

March

AMERICAN SOCIETY FOR TESTING MATERIALS, Statler Hotel, Detroit, Mich., March 4-5.

AMERICAN PETROLEUM INSTITUTE, Mid-Continent district, Division of Production, Wichita, Kans., March 14-15.

AMERICAN PETROLEUM INSTITUTE, Pacific Coast district, Los Angeles, Calif., March 19.

AMERICAN PETROLEUM INSTITUTE, Southwestern district, Division of Production, Houston, Tex., March 28-29.

April

WESTERN PETROLEUM REFINERS ASSOCIATION, annual meeting, Allis Hotel, Wichita, Kans., April 1-2.

AMERICAN CHEMICAL SOCIETY, Cincinnati, Ohio, April 8-12.

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, annual meeting, Stevens Hotel, Chicago, April 10-12.

AMERICAN PETROLEUM INSTITUTE, eastern district, Division of Production, Columbus, Ohio, April 11-12.

SOUTHWESTERN GAS-MEASUREMENT SHORT COURSE, University of Oklahoma, Norman, April 16-18.

NATIONAL PETROLEUM ASSOCIATION, semi-annual meeting, Cleveland Hotel, Cleveland, Ohio, April 18-19.

May

PETROLEUM INDUSTRY ELECTRICAL ASSOCIATION, Dallas, Tex., May 1-3.

NATURAL GASOLINE ASSOCIATION OF AMERICA, annual convention, Hotel Tulsa, Tulsa, May 15-17.

INTERNATIONAL PETROLEUM EXPOSITION, Tulsa, May 18-25.

AMERICAN PETROLEUM INSTITUTE, midyear meeting, Fort Worth, Tex., May 27-31.

June

AMERICAN SOCIETY FOR TESTING MATERIALS, Chalfonte-Haddon Hall, Atlantic City, N. J., June 24-28.

September

NATIONAL PETROLEUM ASSOCIATION, thirty-eighth annual meeting, Hotel Traymore, Atlantic City, N. J., September 18-20.

October

NATIONAL SAFETY CONGRESS, Stevens Hotel, Chicago, October 7-11.

November

AMERICAN PETROLEUM INSTITUTE, twenty-first annual meeting, Stevens Hotel, Chicago, Nov. 11-15.

California Opposes Cole Bill

(Continued from Page 66)

John Beddow, for 6 years with Universal Oil Products Co. and now refinery superintendent of Wilshire Oil Co., presented the position of refiners in opposition to the Cole bill. After indicating the progress made in refining and its contribution to the conservation of crude, he indicated additional assurance would come from hydrogenation, catalytic cracking, polymerization, isomerization, alkylation and their numerous variants which can be expected to become even more effective. The dispersion, transformation and recombination of molecules effected by these processes result in savings, either by converting previous wastes to useful purposes, or by permitting increased power from a unit of given proportions.

Naval Reserves

Dana Hogan, president of Hogan Petroleum Co. and president of San Joaquin Valley Oil Producers Association, was severely critical of the Cole bill. Regarding the Elk Hills Naval Reserve, he said: "There is in Naval Petroleum Reserve No. 1 a potential reserve of about two billion barrels of fuel oil, which at the present rate of Navy consumption, would supply the Navy with fuel oil for over 200 years. Naval Reserve No. 2, which comprises the Buena Vista Hills domal anticline, is divided about half between private ownership and government ownership. However, the government-owned lands are operated under lease by private concerns. To have a perfect naval reserve the Navy Department, for the price of a battleship, could perhaps buy up all of the land held by others in the Elk Hills field and induce operators in the Buena Vista Hills district to retard deep-zone development until a later date. In view of these vast naval petroleum reserves in these two fields there can be no claim that depletion of reserves in other fields is jeopardizing naval operations."

C. A. Johnson, vice president of Oil Producers Agency of California, and manager of two small producing companies, told the committee the Cole bill would tend to destroy private industry through control of energy and by controlling raw material would control industry.

●

New Mississippi Wildcats Due in Various Counties

JACKSON, Miss., Jan. 22.—Four new wildcats loomed at the week's end. In Attala and Holmes counties, the L. W. Dennis block consisting of about 18,000 acres is due a wildcat test soon in Section 28 or 29-14n-3e. Contract for a 6,000-ft. test has been let to J. C. Hawkins of Tyler, Tex., and dry-hole contributions are running $5 an acre in the vicinity.

In Madison County, Ralph Johnson will drill a wildcat on the Shell Whittington block, centering around Township 10n-3w. Yazoo County has two wildcats beginning soon, W. L. Nelson's No. 1 S. S. Stoner, C SE NW Section 2-11-5w, 14 miles northwest of the Tinsley field; Robert P. Lake has staked No. 1 Exum estate, C SW NE Section 13-11-2.

Hill & Hill's No. 1 Kinkead Plantation is considered a likely prospect, 4½ miles west of Tinsley. It is drilling below surface casing set at 128 ft. East of Tinsley, the outpost, J. R. Lockhart and others' No. 1 Frank Brooks, W½ SE NW Section 17-10-2, is below 3,500 ft.

Success of Edgar Johnson's No. 1 Brumfield, which extended production 1 mile north, has attracted interest. Johnson has staked location for a west offset, and T. B. Slick, Jr., is reported considering deepening of No. 1 Atkinson to the northwest, abandoned at 5,012 ft.

Union Production Co.'s No. 1 Stevens, which opened the first Eutaw production, was recompleted making oil and salt water, and later went dead, and may be abandoned. It missed the Woodruff sand. To the east, Plains Production Co.'s No. 1 Milner, after drilling through the Woodruff in search of deeper possibilities in the Eutaw, plugged back from total depth of 5,418 ft. and set 5½-in. casing at 5,130 ft. Perforated in the Woodruff sand at 4,902-07 ft., the well showed slight amounts of oil and wash water upon washing, and when left open, flowed a small stream of water with slight coloration of oil. It is shut down for orders.

Two other tests nearing completion would not flow. One, however, Union Producing Co.'s No. 2 Perry, was swabbed in late last week for a 450-bbl. producer. Its No. 3 Stevens is being swabbed in. To the north, Hassie Hunt's No. 1 J. C. Johnson made a good 500-bbl. well in the Woodruff.

Tinsley production averaged 3,200 bbl. daily last week, with accumulative production totaling 150,353 bbl. as of January 18. Total potential of the 13 wells was estimated at 16,000 bbl. daily, all wells being pinched down on various chokes.

In Sharkey County Ralph E. Fair's No. 1 Houston estate was plugged at 4,060 ft., but may be deepened. Eureka Petroleum Co.'s No. 1 Cooper, a 4,000-ft. test on a 10,000-acre block, will be spudded on February 1.

Triangle Drilling Co.'s No. 1 Broome, in Copiah County, will resume operations on February 1.

Wirt Franklin Opposed to Venezuelan Agreement

WASHINGTON, D. C., Jan. 23.—A flood of foreign oil threatens the domestic market as the result of the Venezuelan trade agreement, Wirt Franklin, Independent Petroleum Association, told the House ways and means committee. The ability of Congress to review the oil-import situation at any time has been a powerful inducement to importers to cooperate with domestic producers and limit imports, he said.

Six Per Cent Gain in Demand For All Oils Says Bureau

The daily average supply of domestic crude oil estimated by the Bureau of Mines to meet the market demand in February 1940 is 3,529,000 bbl., 40,700 bbl. (1 per cent) less than the estimated demand for January but 7 per cent more than actual demand in February 1939.

The latest available figures indicate a gain in the demand for all oils of 6 per cent above the relatively high levels of last year. The increase in the gasoline demand has been relatively less than the gain for other refined products. Gasoline stocks have risen to record levels, but stocks of distillates and other refined oils (east of California) are relatively low.

The estimated domestic demand for motor fuel is 37,300,000 bbl., which adjusting for the leap-year day is 4 per cent higher than actual demand for February 1939.

Forecasts from exporters indicate a pessimistic view for February. This is reflected in the drop of a million barrels from the January forecast to 2,800,000 bbl. for February. Although this is only 109,000 bbl. less than exports for February 1939, they were relatively low in that month.

Benzol and direct sales of natural gasoline have been estimated as 900,000 bbl., making refinery production 46,000,000 bbl. distributed as follows (thousands of barrels): East Coast, 6,020; Appalachian, 1,920; Indiana-Illinois, 8,370; Oklahoma, 2,760; Kansas, 2,250; inland Texas, 3,350; Texas Gulf Coast, 12,010; Louisiana Gulf Coast, 1,410; inland Louisiana-Arkansas, 790; Rocky Mountain, 1,210; California, 6,000.

Natural gasoline to be blended at the refineries is estimated as 6.83 per cent of total gasoline production, or 3,140,000 bbl. The yield of straight-run and cracked gasoline is estimated as 44.2 per cent. The application of this yield to the production of 42,860,000 bbl. of gasoline gives crude runs of 96,940,000 bbl., or 3,342,700 bbl. daily. Foreign crude runs are estimated as 2,100,000 bbl.

Exports of crude oil are estimated as 5,000,000 bbl. The estimate for fuel and losses is 2,500,000 bbl.

ESTIMATED DAILY AVERAGE CRUDE-OIL DEMAND BY STATES

State—	Forecast Feb. 1940	Forecast Jan. 1940	Actual Feb. 1939
Texas	1,371,400	1,411,000	1,297,000
California	585,900	593,900	572,000
Oklahoma	429,000	433,900	518,000
Illinois	325,500	314,800	142,000
Louisiana	252,800	254,200	237,000
Kansas	155,500	160,600	163,000
New Mexico	100,300	101,990	100,000
Michigan	64,500	61,000	49,000
Arkansas	60,000	59,700	58,000
Wyoming	55,200	58,700	50,000
Pennsylvania	54,900	51,900	46,000
Kentucky	15,200	12,900	13,000
Montana	15,200	15,400	15,000
New York	13,900	13,900	13,000
West Virginia	11,000	10,000	13,000
Ohio	8,700	8,100	4,000
Indiana	5,200	3,900	2,000
Colorado	4,100	3,900	3,000
Mississippi	700	.....	.....
Total	3,529,000	3,569,700	3,295,000

Russo-German Oil Plan

Reports from Rumania say Russia has agreed to let Germany operate and police 200 miles of railway linking Rumania with Germany by way of former Poland. Another Russian-German agreement provides for German technicians to supervise the operation of oil fields in Russia-occupied Poland near the Rumanian frontier.

DEATHS

HUGH B. EVANS, 75, Los Angeles oil man, died last week.

JAMES A. HOGAN, 64, Tulsa oil producer, a native of Titusville, Pa., died last week.

O. J. BRAZIL, 43, superintendent of the Phillips Petroleum Co.'s Pantex gasoline plant at Borger, Tex., died January 22.

GEORGE A. KROENLIEN, 41, consulting geologist, and president, Midland Exploration Co., of Midland, Tex., died January 16 in St. Louis, Mo.

BRIG. GEN. PALMER E. PIERCE, who served as assistant to Walter C. Teagle when he was president of the Standard Oil Co. of New Jersey from 1929 to 1933, died in New York last week. General Pierce was stricken by a heart attack while attending the annual dinner of the Pan American Society. He first joined the Standard Oil Co. of New Jersey in 1920 and became assistant to the president in 1929. He retired in 1933.

PRINCIPAL SECTION OF **ANNUAL NUMBER** STARTS ON NEXT PAGE

Completions in 1939 Normal

By JAMES McINTYRE

THE total of completed wells in the United States in 1939 was 27,053, of which 18,453 were classified as oil wells; 6,355 were dry holes and 2,031 were gas wells. The total was 96 lower than that of 1938. No great fields were added to the country's petroleum reserves but a large number of pools were discovered and much new production added by discoveries of pay sands in already known fields, the existence of which had only been conjectural at the best. The outstanding oil state of the year was Illinois,

Illinois

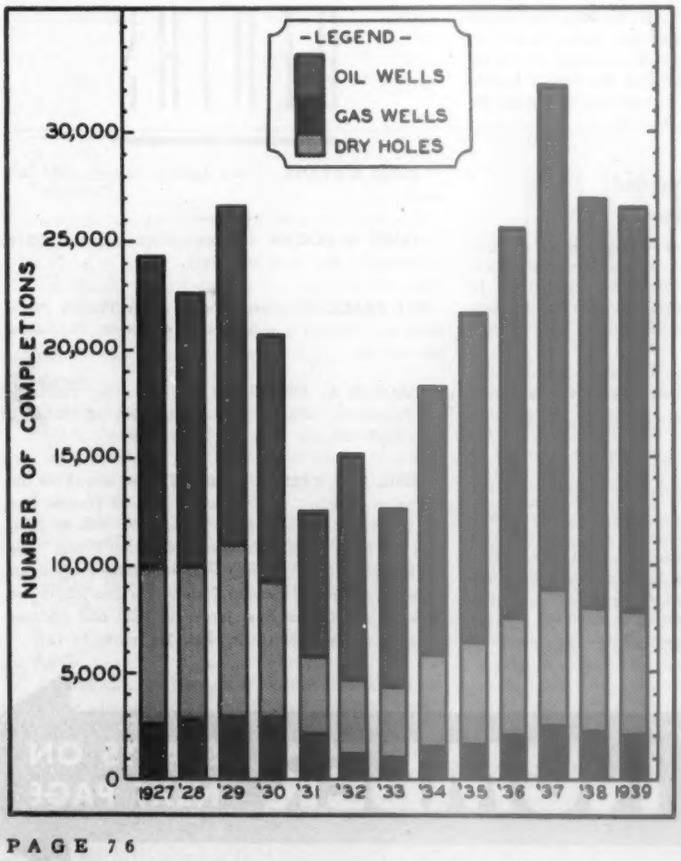
Illinois' meteoric rise from a daily average production of over 138,000 bbl. for January to more than 251,000 bbl. during December was due to the completion of 2,943 oil wells out of 3,582 tests drilled. This was more than 59 per cent over the previous year's completions and a jump of 816 per cent over the 1937 record. The number of wells producing rose over 200 per cent from 2,120 in 1938 to 4,778 at the end of 1939.

The development of the Salem field featured the year but it had a close second in the discoveries in the counties along the Wabash River, particularly White County, in which seven pools were opened. The third important factor was the development of new horizons and the obtaining of large-scale production fom sands believed to have only mediocre possibilities.

Wildcatting in the state was extremely active and 27 new pools resulted with production obtained from Waltersburg, Tar Springs, Palestine, Paint Creek stray, St. Louis lime, Devonian lime and two Pennsylvanian sands in addition to the Cypress, Benoist, Aux Vases and McClosky formations which already had the attention of the Illinois operators.

The Louden field continued its steady development throughout the year, accounting for most of the 960 completions in Fayette County. The discovery of good production in the Paint stray sand was a boon to the operators in the field who were already blessed with Cypress and Bethel pays. The field was still active at the end of the year and will continue active throughout 1940.

White County jumped into the limelight with the discovery of McClosky and Aux Vases production in the Mill Shoals field, after several years of sporadic wildcatting which brought only small shows as a result. The area had been frowned on by most operators as being a poor prospect as it was nearly the deepest portion of the basin. Six more discoveries before the end



Summary of Completed Wells in All the Fields of the United States in 1939 and 1938

		Comp.	Init. prod. (bbl.)	Dry holes	Gas wells	Oil wells	Av. init. prod. (bbl.)
Eastern	1939	4,392	44,115	322	771	3,299	13.3
	1938	3,660	13,810	314	698	2,648	5.2
Central Ohio	1939	576	521	214	342	20	3.1
	1938	544	284	182	340	22	12.9
Lima, Ohio	1939	37	90	21	3	13	6.9
	1938	34	269	13	10	11	24.5
Indiana	1939	371	27,454	156	37	176	155.9
	1938	158	1,711	69	43	46	37.2
Kentucky	1939	734	14,847	312	147	275	53.9
	1938	924	43,033	314	126	484	88.9
Michigan	1939	1,392	434,492	527	52	813	534.5
	1938	1,000	255,148	406	28	466	450.8
Mississippi	1939	32	5,600	22	1	9	622.2
	1938	25	.....	19	6	0	....
Alabama	1939	2	.....	2	0	0	....
	1938	3	.....	3	0	0	....
Florida	1939	2	.....	2	0	0	....
	1938	0	.....	0	0	0	....
Georgia	1939	1	.....	1	0	0	....
	1938	0	.....	0	0	0	....
Illinois	1939	3,582	838,989	621	18	2,943	284.7
	1938	2,233	489,590	408	19	1,806	271.1
Kansas	1939	1,358	422,394	309	72	977	432.3
	1938	1,573	643,863	402	63	1,108	581.1
Oklahoma	1939	1,761	205,367	603	113	1,045	196.5
	1938	1,654	214,978	545	123	986	218.0
North Central Texas	1939	2,526	788,391	979	42	1,505	523.5
	1938	3,130	875,321	1,114	43	1,973	443.6
East Central Texas	1939	244	18,357	122	27	95	193.2
	1938	319	32,420	122	25	172	188.4
East Texas	1939	385	17,597	20	0	365	48.3
	1938	1,641	83,793	43	1	1,597	52.5
East Texas Border	1939	69	10,490	16	11	42	249.7
	1938	135	37,225	15	10	110	338.4
West Texas	1939	1,870	1,464,169	163	4	1,703	859.1
	1938	2,045	1,568,254	241	16	1,788	877.1
Texas Panhandle	1939	442	116,068	33	81	114	1018.1
	1938	561	196,265	26	105	430	456.4
Southwest Texas	1939	2,424	204,591	745	87	1,592	128.5
	1938	2,568	295,350	747	105	1,716	172.1
Gulf Coast—Texas	1939	1,365	315,651	250	62	1,053	299.8
	1938	1,411	469,361	269	36	1,106	424.4
Gulf Coast—Louisiana	1939	835	184,496	242	11	582	317.0
	1938	525	127,732	186	10	329	388.5
North Louisiana	1939	537	68,200	161	87	289	235.9
	1938	622	167,970	145	116	361	465.0
Arkansas	1939	254	88,435	65	6	183	483.1
	1938	251	139,250	44	3	204	682.6
Nebraska	1939	2	130	1	0	1	130.0
	1938	1	.....	1	0	0	....
Montana	1939	170	9,728	37	19	114	85.3
	1938	109	.....	27	13	69	78.1
Wyoming	1939	150	86,504	41	10	99	873.7
	1938	157	45,633	43	19	95	480.4
Colorado	1939	25	895	17	1	7	127.9
	1938	18	948	10	1	7	135.4
New Mexico	1939	606	202,250	63	18	525	385.2
	1938	579	182,293	67	18	494	369.0
Utah	1939	0	.....	0	0	0	....
	1938	4	.....	3	1	0	....
California	1939	865	774,629	251	0	614	1261.6
	1938	1,265	920,851	265	7	993	927.4
Missouri	1939	46	.....	37	9	0	....
	1938	0	.....	0	0	0	....
Total	1939	27,053	6,344,650	6,355	2,031	18,453	343.8
Total	1938	27,149	6,810,743	6,043	1,985	19,121	356.2
Difference		96	466,093	312	46	668	12.4
Total	1937	32,560	8,091,294	6,420	2,540	23,600	342.9
Total	1936	25,888	6,460,140	5,295	2,068	18,525	348.7
Total	1935	21,420	5,669,934	4,911	1,401	15,108	375.3
Total	1934	18,197	4,478,701	4,312	1,373	12,512	358.0
Total	1933	12,312	3,016,502	3,312	932	8,068	373.9

of the year caused the greatest flurry of leasing and trading. The Storms field in Township 6s-9e, has the greatest possibilities of the new discoveries as its production is coming from the Waltersburg sand, leaving most of the Chester series yet to be explored. The discovery well in the field blew in unexpectedly as operators were attempting to test McClosky saturation.

Some of the fields in White and Wabash counties overlap into Indiana and results along both sides of the Wabash River indicate that the development will continue for several years. Some of the fields have obtained production from several sands and neighboring fields produce from different pay zones. Principal field in the area is the Griffin field in Wabash County, Illinois, and Gibson County, Indiana.

Kansas

Harassed by a weak marketing situation, Kansas field activity continued its decline throughout most of the year, but showed an upward trend which may carry over into 1940 during the latter months. Total of completions for the year was 1,358 wells, 13.6 per cent under 1938, bringing the state to its lowest point since 1935.

Phillips and Norton were added to the oil-producing counties during the year and new fields were uncovered in Barton, Butler, Crawford, Cowley, Ellis, Greenwood, Johnson, Labette, McPherson, Montgomery, Pratt, Rice, Russell and Wilson counties. New gas fields were discovered in Barton, Barber, Greenwood, Johnson, Sherman and Woodson counties.

Oklahoma

Oklahoma, still suffering under the loss of a part of its market to new fields east of the Mississippi River, recovered to some extent and completed 1,761 wells, an increase of 6.5 per cent over previous year when 1,654 completions were recorded.

Creek County, one of the older producing districts in the state, showed a distinct revival, completing 206 wells, 121 of which were oil wells. Pottawatomie County had 269 completed wells to lead the state, and 225 of these were successful. This was an increase of 95 completions over 1938.

Wildcats west and north of the Cement field in Caddo proved successful and extended that field, with no limits evident as yet. A 5,745-bbl. well in the Cement townsite and the discovery of new pay horizons heightened interest in the area. At the close of the year 18 separate pays were listed although none of these was continuous throughout the field.

The Ramsey pool continued to bolster Payne County and development in the Coyle pool brought the total completions to 63 for the year. Ramsey completions continued large in potential output, and the pool was extended to the north and east of the community block although the larger wells were still confined to the communitized area.

West Texas

Nine new producing areas, including deeper-pay horizons in established fields, formed the record of West Texas in 1939. Only two of last year's new pools promise to become even fairly large. The Cedar Lake field in northeastern Gaines County discovered in September and which had three oil wells at the close of the year and the Apco pool in Pecos County, opened in May by a test drilled to the Ellenburger lime of Lower Ordovician age, were the most auspicious of the year's finds.

North and Central Texas

Thirty-one pools and new producing horizons in established pools were opened in North Texas last year. Discoveries were made in Archer, Montague, Clay, Cooke, Wilbarger, Young, Jack and Baylor counties. Two Ordovician pools were opened in Cooke County, one at 1,783-93 ft. and the other at 5,230-65 ft.

In Central Texas 21 discoveries of new pools and new producing horizons were made in Shackelford, Stephens, Jones, Brown, Callahan, Coleman, Eastland, Palo Pinto and Taylor counties. None of the new producing spots are regarded as important but all add to the nation's oil reserves. Three deep pools in Stephens County look like the best of the year's new offerings. The Griffin pool in Jones County which started the year with 3 oil wells ended with 64, and an estimated oil reserve of 9,000,000 bbl.

Southwest Texas

Despite a decrease from 2,568 to 2,424 in the number of wells drilled, Southwest Texas had a successful year with 35 oil and gas fields being opened in addition to extensions and discoveries of deeper pay horizons. The expansion of the Frio-Vicksburg play through Jim Wells, Brooks, Hildalgo and Starr counties was probably the outstanding development of the year.

The Corpus Christi district had 24 oil and gas discoveries, together with the expansion of the producing area in the East White Point and McCampbell fields in Aransas and San Patricio counties. A townsite drilling play resulted from the extension of the McCampbell field into the town of Aransas Pass.

Six pools were located in the Laredo district due to the far-flung wildcatting during the year.

Gulf Coast

An extensive drilling campaign which gave coastal Louisiana its busiest year accounted for most of the increase of 264 wells to bring the Gulf Coast's drilling total to 2,200 for the year. Results of wildcatting fell short of 1938, with only 25 fields discovered, 13 of which were in Louisiana and 12 in the Texas sector.

On the Texas coast 1,365 tests were completed while coastal Louisiana increased its total 310 tests to bring the aggregate for the year to 835 completions. Texas counties which recorded new fields included Brazoria, Harris, Matagorda, Wharton, Fort Bend, Galveston, Liberty, Jefferson, Jackson and Chambers. New fields were discovered in Jefferson, Avoyelles, Cameron, Iberville, St. Bernard, St. James, St. John the Baptist, La Fourche, Allen, St. Charles, Calcasieu, St. Martin, and Iberia parishes in Louisiana.

An extensive wildcatting program was started by the discovery of the Eola field in Avoyelles Parish, which was opened in January with the discovery well obtaining more than 100 ft. of saturated Wilcox sand of Tertiary age. By the close of the year 42 oil wells had been completed in the field.

North Louisiana-Arkansas-Mississippi

A marked increase in prospecting together with the success of the wildcatters during the latter months of the 1939 forecast an active development campaign for this year. The past year saw most of the efforts of the operators concentrating on the development and extension of areas already discovered. The high point of the year was reached with the discovery of the Tinsley field in Mississippi, that state's first oil production.

Four of the discoveries in the area were credited to Arkansas, two to North Louisiana, two to the Texas border and two to Mississippi. Arkansas discoveries included Big Creek and Dorcheat fields in Columbia County, and the Lewisville field and its new sand extension in Lafayette County. In North Louisiana the Temple field was credited to Caddo Parish while the Lisbon field was discovered in Claiborne Parish. The Carthage pool in Panola County and the Smithland pool in Marion County were discovered in the East Texas border area and Mississippi discoveries included the Tinsley field in Yazoo County and its lower-sand extension.

The Mississippi discovery, the Tinsley pool, is judged to be only average at this time but it takes on added importance because of the impetus which it gives wildcatters to carry on prospecting in the state and to extend their operations into Alabama. At the present time the area is undergoing an extensive geophysical and leasing campaign.

Nebraska

It took until November of 1939 to develop anything from the leasing play which started in the Forest City basin of Missouri, Iowa, and Nebraska, late in 1938. The prospects of the area did not look particularly bright until a 130-bbl. well in the Hunton lime was completed in Richardson County, Nebraska. Missouri, the scene of most of the activity, saw 46 tests completed with no oil wells as yet, although nine gas wells were completed.

Michigan

Encouraged by the passage of a strong conservation act, a better crude price, and the discovery of shallow Traverse-lime production in the southwestern section of the state, Michigan operators drilled 1,392 wells during the year, a decided increase over the even 1,000 recorded in 1938. Eight hundred and thirteen of these tests were completed as oil wells and 52 gas wells were also completed. The wildcat campaign was not so favorable as only 13 of the outposts showed any success as oil wells and three were completed as gas wells. Discoveries were listed in Ottawa, Kent, Allegan and Van Buren counties.

The discovery of the Walker-Wyoming-Tallmadge field in Kent and Ottawa counties was outstanding.

Rocky Mountains

The wildcatting campaign in Lea and Eddy counties, New Mexico, paid big dividends during the year with four pools opened in the former and three in the latter county. The Loco Hills pool in Eddy County topped the list with 67 producing wells being completed by the end of the year. The South Lovington field, in Lea County, was second with 30 completions by December 31. Neither Loco Hills nor South Lovington are fully developed as yet; the former is a sand field while the latter gets its production from a lime formation.

Colorado continued below normal throughout the year, although a slight increase was noted in the total completions over 1938. No new pools were discovered.

The Lance Creek field, in Niobrara County, and the Wertz field in Carbon County, Wyoming, each received a deeper horizon as the result of drilling during the year. The Lance Creek field also received an extension in a known pay horizon.

Glacier and Toole counties led the activity in Montana. Approximately 320 acres were added to the Cut Bank field, approximately 640 acres of productive oil and gas territory were added to the North Cut Bank field.

California

Four fields discovered in California during 1939 included Arvin, in Kern County, Northeast Coalinga, Strand, in Kern County, and Paloma, also in Kern County. The Southeast Coalinga field received substantial extensions; the Montebello field passed its drilling peak as far as the upper zones are concerned but drilling on the edges of the structure was quite active as the year closed. The Dominguez field received a small extension, and Ventura Avenue was likewise given more productive territory.

Domestic Crude Production in 1939, 1,255,783,534 bbl.

By JAMES McINTYRE

THE oil fields of the United States produced 1,255,783,534 bbl. of crude in 1939, or 54,900,135 bbl. more than in 1938, but 8,333,568 bbl. less than in 1937, the peak production year for all time.

Last year's total production was equal to that produced in the United States from the late summer of 1859, when the Drake well was completed, down to the same period in 1903, or 44 full years.

Outside of Illinois a tight rein was held on production in the leading producing states to prevent a chaotic oversupply. The regulatory bodies of Kansas, Oklahoma, Texas, New Mexico, Louisiana Arkansas, and Michigan cooperated with crude-oil purchasers in an attempt to maintain a balance between supply and demand. Illinois, with no conservation law, and with its fields several hundred miles nearer the central and eastern markets than those of Oklahoma and Kansas, took advantage of its opportunities and produced all the oil the traffic would bear, piling up a total of 91,797,241 bbl. for the year, ranging fifth among the states, or next to Louisiana, in the volume of crude produced.

Texas continued to lead all states in crude output with 485,339,998 bbl., an increase over its 1938 production of 14,579,663 bbl. California was second with 224,328,365 bbl., which was a decline of 8,333,568 bbl. from its 1938 production. Oklahoma ranked third with 153,413,878 bbl., a falling off of 15,893,318 bbl. from its 1938 record. Louisiana was fourth with 94,229,472 bbl., a drop of 725,601 bbl. from its 1938 total. Then came Illinois with 91,797,241 bbl., an increase of 69,033,307 bbl., or more than 303 per cent over its 1938 record from its 48 new fields and its very considerable number of old fields that flourished in the early years of the century.

One of the new crop of Illinois fields rose to rank second only to the East Texas field. This was Salem, in Marion County, located in Townships 1n-2e and 2n-2e. Salem produced 50,179,099 bbl. The Louden field in Fayette County, Townships 8n-3e and 7n-3e, produced 18,350,888 bbl during the year and the aggregate production of the two pools was not far under the total produced by the State of Kansas in the same period.

While Illinois was getting rid of its new store of oil as rapidly as the refineries would take it, Kansas was conserving a large portion of its potential. The production of the state last year was 59,162,680 bbl., or 1,028,590 bbl. more than in 1938, but the fact that Illinois had taken from it much of its usual market for crude made it necessary to cut production back to meet the reduced demand, the result having been that wells of enormous capacity were choked in to a modicum of their ability to produce, and drilling in flush fields was reduced to an occasional well. It is a safe guess that Kansas could have doubled its production last year with a sufficient market and a more vigorous drilling campaign.

Illinois at this time has only two very large fields, Salem and Louden. Clay City, in Clay County, is the only one of the fields, antedating Salem and Louden, that is still making a respectable showing as a producer. Its output last year was 6,780,813 bbl. The once prominent Noble field in Richland County and Centralia in Marion County have fallen to inconsequence. Only the possibility of deeper pays in those fields can bring them back to prominence. The recent discovery of Devonian-lime production in Salem has given that field new life. Salem was believed to have hit its peak in September of last year when it averaged 200,165 bbl. per day, but in the past week it broke all its records by producing an average of 211,988 bbl. per day following the completion of wells in Devonian and McClosky lime which ranged from 3,000 to more than 6,200 bbl. per day in initial production. The state last week also made a peak production of 366,931 bbl. per day, and now all thought of Illinois slipping has been set at naught, and a goal of 400,000 bbl. per day in the near future is freely predicted. How much higher it will go than that is a question to which many oil men in and out of Illinois would like to know the answer. Much depends on what lies buried in the Devonian lime.

LEADING FIELDS OF THE UNITED STATES IN 1939

	Barrels
East Texas	146,929,889
Salem, Illinois	50,179,099
Oklahoma City, Oklahoma	35,728,192
Wilmington, California	31,115,616
Rodessa, La-Ark.-Tex.	20,392,177
Kettleman Hills, California	19,556,029
Midway-Sunset, California	18,949,029
Louden, Illinois	18,350,888
Bradford-Allegany, Pa.-N. Y.	18,093,415
Long Beach, California	16,996,027
Seminole, Oklahoma	16,365,690
Ventura Avenue, California	12,941,952
St. Louis-Maud, Oklahoma	11,582,572
Santa Fe Springs, California	10,053,233

Production in the United States, 1930 to 1939, Inclusive

	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	No. active wells Dec. 31, 1939	Dly. av. prod. per well (bbl.)
California	228,091,899	188,829,032	178,127,794	173,125,420	175,508,566	207,832,131	214,756,327	238,591,887	249,930,003	224,328,365	14,188	43.32
Oklahoma	216,114,591	175,703,848	149,487,234	178,356,449	178,652,012	182,596,874	200,880,705	223,106,788	169,307,196	153,413,878	55,654	7.55
Texas	292,392,102	328,608,575	314,378,759	401,808,452	378,233,017	391,592,331	424,396,034	502,967,214	470,760,325	485,339,998	90,736	14.65
Arkansas	20,114,782	15,626,407	12,529,870	11,449,635	11,359,458	11,138,586	10,697,345	12,181,083	18,357,235	21,364,988	3,020	19.38
Kansas	42,123,347	38,956,338	35,339,206	41,305,768	45,754,117	53,364,446	57,084,490	69,158,432	58,134,090	59,162,680	23,707	6.84
Wyoming	17,740,017	14,692,272	12,994,748	11,095,729	12,488,995	13,237,765	14,268,839	19,637,218	18,956,277	21,279,956	3,770	15.46
Louisiana	23,881,270	22,856,536	22,467,889	25,629,655	32,478,282	50,286,626	80,807,016	90,427,302	94,955,073	94,229,472	5,324	49.32
Illinois	5,651,000	4,717,000	4,801,000	4,252,000	4,472,000	4,351,000	4,439,000	7,426,000	22,800,000	91,797,241	16,614	15.15
Pennsylvania	12,918,000	11,862,000	12,395,000	12,677,000	14,572,000	15,899,000	17,041,000	19,173,500	17,449,000	17,354,000	78,725	.60
Ohio	6,483,000	5,318,000	4,606,000	4,296,000	4,299,000	4,121,000	3,837,000	3,549,900	3,297,200	3,165,000	29,710	.29
Kentucky	7,462,000	6,490,000	6,322,000	4,621,000	4,868,000	5,324,000	5,638,000	5,496,500	5,834,300	5,622,000	14,320	1.08
W. Virginia	5,111,000	4,477,000	3,907,000	3,827,000	4,133,000	3,959,000	3,814,000	3,829,000	3,724,750	3,539,000	13,200	.73
Montana	3,203,808	2,847,201	2,320,155	2,358,056	3,509,015	4,367,228	5,798,661	5,799,364	4,824,917	5,854,116	1,923	10.81
New York	3,854,000	3,395,000	4,524,000	3,153,000	3,814,000	4,241,000	4,626,000	5,464,500	5,045,200	5,105,000	14,250	.98
Colorado	1,623,639	1,492,862	1,114,064	914,881	1,130,375	1,555,542	1,612,760	1,578,391	1,324,374	1,401,199	201	19.10
New Mexico	10,377,415	15,360,383	12,344,684	13,801,278	16,438,878	20,154,321	26,647,459	38,438,072	36,008,527	37,668,235	2,990	34.52
Indiana	900,000	831,000	806,000	732,000	816,000	767,000	792,000	821,200	967,800	1,436,000	1,379	2.85
Tennessee	20,000	7,000	5,000	7,000	11,000	.....	.....	.....	.....	.....	.....	....
Michigan	3,589,000	3,733,000	6,834,000	7,863,000	10,566,518	15,789,905	11,977,063	16,410,751	19,138,932	23,566,406	2,758	23.50
Miscellaneous	.....	.....	.....	.....	.....	43,000	.....	60,000	68,200	156,000	.....	....
Total	901,740,870	845,803,454	785,304,403	901,273,323	903,104,233	990,620,775	1,089,113,699	1,264,117,102	1,200,883,399	1,255,783,534	*372,468	9.24

*Includes nine wells in Mississippi.

Variation in Annual Crude-Oil Production of Major Fields in United States, 1930 to 1939, Both Inclusive

Pool—	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
Santa Fe Springs, California	44,251,396	24,272,660	22,538,036	18,268,904	14,722,264	16,158,795	16,460,142	15,749,710	12,633,748	10,053,233
Ventura Avenue, California	17,493,155	16,255,256	12,332,853	12,575,647	9,882,614	10,979,450	12,609,878	12,688,649	12,927,740	12,941,952
Seal Beach, California	8,026,796	4,882,115	4,522,489	3,987,459	3,515,457	3,380,526	3,461,067	3,415,184	3,206,135	2,642,906
Kern River, California	5,349,915	3,847,474	3,387,262	3,208,773	3,704,447	4,518,109	5,136,850	5,555,639	4,594,022	4,125,628
Mountain View, California	.....	.....	.....	231,756	2,609,017	9,228,891	9,712,658	6,835,954	4,034,457	2,985,728
Midway-Sunset, California	23,487,147	18,728,461	17,929,036	17,540,122	19,712,566	20,239,798	21,481,621	26,492,082	22,869,315	18,947,029
Elk Hills, California	6,572,379	4,925,636	4,537,461	4,488,688	3,345,772	3,216,318	3,194,445	3,785,942	3,885,771	3,833,611
Coalinga, California	3,373,078	2,978,392	3,649,578	4,424,043	6,594,950	7,249,417	6,067,079	5,773,718	3,903,380	5,724,621
Brea-Olinda, California	4,423,266	3,626,008	3,018,125	2,964,654	3,744,538	3,611,804	2,960,753	2,656,765	2,123,223	2,066,055
Coyote, California	3,890,047	3,751,857	3,716,467	3,694,139	4,144,036	4,540,417	3,943,619	4,276,075	4,348,994	4,012,523
Montebello, California	3,712,725	2,446,052	2,162,530	1,932,596	1,980,942	2,287,385	3,204,714	3,173,522	4,151,535	7,451,945
Richfield, California	3,643,578	2,443,186	2,263,699	2,466,518	2,925,001	2,803,703	2,442,508	3,149,090	3,349,814	3,132,379
Huntington Beach, California	11,108,203	7,778,549	8,016,801	13,100,489	15,106,258	15,133,293	13,247,499	13,288,645	11,934,721	9,971,806
Long Beach, California	36,599,688	30,166,409	27,435,553	24,825,049	23,067,025	26,562,848	24,994,299	21,870,310	20,654,617	16,996,027
Torrance, California	4,116,846	2,191,781	2,281,274	2,381,875	2,525,990	2,498,442	2,859,892	2,824,849	5,201,344	6,411,812
Inglewood, California	6,429,205	5,289,125	4,869,335	4,059,972	3,376,586	4,477,044	4,546,727	5,521,459	5,340,024	4,607,935
Dominguez, California	3,694,075	4,183,052	6,823,579	6,626,615	6,655,465	7,915,850	9,712,179	9,840,769	9,760,460	7,125,953
Kettleman Hills, California	6,209,357	16,544,824	21,959,601	21,624,020	21,393,882	27,606,817	29,295,959	29,131,362	25,608,450	19,556,609
Mount Poso, California	3,883,924	3,009,374	2,907,839	3,050,826	3,686,217	5,539,888	6,747,210	6,723,416	6,234,068	4,307,601
Round Mountain, California	1,196,832	245,426	928,814	1,116,913	1,808,332	2,327,151	3,955,379	4,857,582	5,484,304	3,528,851
Santa Maria, California	1,152,893	1,015,205	1,080,723	1,247,591	1,806,106	1,531,370	1,668,734	3,908,005	6,145,597	6,270,023
Rosecrans, California	2,435,341	1,344,452	1,125,624	1,086,163	1,037,817	993,195	803,811	1,252,519	3,723,567	4,468,481
North Belridge, California	.....	.....	.....	.....	2,192,772	2,713,426	3,916,963	5,699,911	4,869,338	4,365,916
Wilmington, California	.....	.....	.....	.....	.....	.....	.....	14,181,162	34,202,442	31,115,616
Joiner, Texas	29,122	37,932,810	37,131,836	58,145,564	49,345,560	55,006,571	53,421,561	55,489,391	45,727,633	45,943,048
Kilgore, Texas	.....	43,573,815	39,086,616	63,537,717	55,200,902	58,074,728	50,290,190	51,704,986	47,264,621	45,273,415
Longview, Texas	.....	26,257,287	45,725,947	81,186,059	73,953,949	61,991,874	61,077,122	62,043,356	55,326,124	55,753,426
Conroe, Texas	.....	.....	2,499,645	21,286,672	17,143,444	15,269,014	14,909,126	15,157,548	11,580,239	9,199,357
Ward, South, Texas	.....	.....	.....	1,133,986	2,224,603	3,745,659	4,935,566	5,620,214	3,494,885	2,334,785
Gray County, Texas	21,782,549	14,861,340	11,244,964	10,386,789	12,333,756	11,176,761	10,892,282	13,434,156	10,871,943	10,918,868
Chalk-Settles, Texas	11,188,886	9,762,304	6,668,057	5,782,469	6,238,916	6,981,618	6,744,644	5,808,748	5,167,624	5,280,404
Barbers Hill, Texas	7,865,597	8,085,278	7,383,572	8,127,939	6,866,933	6,801,590	5,496,198	4,469,771	3,477,611	3,180,276
Electra, Texas	3,995,470	2,941,619	2,988,143	2,773,284	2,673,291	2,969,428	2,880,526	3,225,023	3,005,077	3,124,637
Loma Novia, Texas	.....	.....	.....	.....	.....	689,761	4,620,409	6,423,076	4,651,470	3,437,934
Hutchinson County, Texas	7,285,486	3,933,837	4,496,338	3,966,016	4,488,823	4,737,306	5,589,421	7,690,955	7,679,349	8,463,661
Big Lake, Texas	7,016,204	9,501,820	9,068,844	6,851,980	4,627,049	3,609,284	2,948,095	2,741,245	2,437,649	2,366,541
Hendrick, Texas	25,925,581	14,992,723	11,152,545	7,497,934	6,580,082	6,066,681	5,919,516	4,359,688	4,100,782	3,489,341
Luling, Texas	3,476,058	2,948,514	2,653,814	2,442,080	2,145,066	2,013,029	2,070,765	2,279,247	2,535,850	2,430,401
Hull, Texas	3,161,436	2,237,018	1,855,169	1,980,342	3,498,660	2,307,765	1,982,664	2,535,820	2,883,636	2,258,046
Van, Texas	7,530,222	15,542,023	17,361,174	17,271,227	14,633,277	14,265,088	12,538,424	11,479,825	5,624,755	5,391,069
Darst Creek, Texas	11,343,682	7,963,694	6,080,127	4,413,259	3,348,204	3,262,328	1,680,213	2,759,230	2,747,518	2,608,944
Thompson, Texas	.....	731,624	4,223,213	4,938,511	4,215,513	4,131,977	3,528,733	4,108,386	3,969,053	4,436,083
Upton-Crane, Texas	14,152,389	7,102,015	7,375,773	6,155,487	6,214,891	6,323,177	8,615,460	10,847,364	10,331,190	9,921,026
Saxet, Texas	.....	9,373	154,712	821,961	713,668	1,162,222	4,585,637	12,477,593	10,740,102	8,559,514
Government Wells, Texas	.....	.....	.....	4,170,000	6,406,461	6,506,804	5,819,552	5,694,040	4,131,226	3,322,624
Anahuac, Texas	.....	.....	.....	.....	.....	339,699	2,662,187	4,352,378	2,830,645	2,551,755
Hastings, Texas	.....	.....	.....	.....	.....	620,921	2,409,977	5,717,164	6,966,128	6,516,721
Plymouth, Texas	.....	.....	.....	.....	.....	530,335	3,330,122	5,019,987	4,477,864	4,194,376
Tomoconnor, Texas	.....	.....	.....	.....	32,302	515,569	1,324,537	4,502,528	4,423,458	4,260,358
Talco, Texas	.....	.....	.....	.....	.....	.....	1,453,694	9,926,024	9,498,955	9,625,038
K.M.A., Texas	1,775,568	1,262,705	1,013,339	884,172	820,130	867,770	726,153	1,064,971	4,977,235	8,207,319
Benavides, Texas	.....	.....	.....	.....	.....	.....	.....	787,558	3,677,100	2,866,661
Fairbanks, Texas	.....	.....	.....	.....	.....	.....	26,845	125,174	803,404	2,585,600
Manvel, Texas	.....	77,255	162,608	597,550	1,017,687	2,304,629	2,971,512	3,458,697	3,310,952	2,684,722
Old Ocean, Texas	.....	.....	.....	.....	18,904	96,141	161,387	449,053	1,679,438	3,213,257
West Columbia, Texas	1,915,990	1,490,108	1,329,437	1,215,801	1,045,299	917,416	770,072	848,441	1,634,823	2,274,772
Heyser, Texas	.....	.....	.....	.....	.....	.....	124,505	1,558,662	3,091,165	3,272,250
McCampbell, Texas	.....	.....	.....	.....	.....	.....	.....	845,461	1,877,121	2,796,987
North Cowden, Texas	.....	27,904	16,662	87,392	536,814	1,198,424	2,188,885	2,914,430	2,387,210	3,155,156
Goldsmith, Texas	.....	.....	.....	.....	.....	66,837	379,446	3,272,084	5,216,061	7,598,220
Yates, Texas	40,578,656	27,326,286	23,234,208	20,667,846	15,917,658	15,873,389	13,197,907	10,889,221	6,808,196	7,928,427
Tomball, Texas	.....	.....	.....	251,850	990,012	1,903,037	2,608,415	3,034,048	2,588,478	2,485,431
Cayuga, Texas	.....	.....	.....	.....	595,492	1,301,000	2,138,193	3,159,406	3,112,829	3,339,411
St. Louis-Pearson, Maud, Okla.	13,194,525	8,056,449	7,368,077	8,466,897	8,525,557	8,780,671	8,884,709	7,809,458	7,776,496	11,582,572
Oklahoma City, Oklahoma	34,603,067	44,822,508	33,397,537	66,984,570	60,833,486	53,385,882	51,231,766	54,776,210	38,795,958	35,728,192
Little River, Oklahoma	17,348,145	9,444,872	6,391,202	6,310,665	5,370,669	5,887,099	5,067,939	4,221,863	3,040,364	2,865,156
Allen, Oklahoma	6,579,898	3,839,577	3,255,495	3,342,983	3,065,168	2,896,745	3,076,287	2,511,447	2,475,813	2,289,476
Seminole City, Oklahoma	6,562,504	4,370,314	3,959,604	3,932,217	3,779,065	4,062,102	3,810,242	3,428,077	2,841,656	2,618,330
Earlsboro, Oklahoma	23,398,033	12,699,233	10,689,164	10,915,763	7,679,214	7,414,338	6,600,719	5,595,999	4,514,243	3,589,914
Bowlegs, Oklahoma	6,509,450	4,391,549	4,200,043	3,917,746	3,760,842	3,844,699	4,335,377	4,178,171	3,199,725	3,678,022
Burbank, Oklahoma	5,717,088	4,566,290	3,974,096	3,516,190	3,406,107	3,101,608	2,826,864	2,870,872	3,938,143	2,688,669
Bristow, Oklahoma	4,678,137	3,661,296	3,095,326	3,190,604	3,000,168	3,328,513	3,186,013	2,790,251	2,389,025	3,402,743
Cushing-Shamrock, Oklahoma	4,980,031	4,656,393	4,349,054	4,367,112	5,044,132	4,737,897	4,129,184	3,908,408	3,847,633	3,446,230
Healdton, Oklahoma	4,208,631	4,025,058	3,880,981	3,638,589	3,386,150	3,397,410	3,435,656	3,653,768	3,400,926	3,236,484
Fitts, Oklahoma	.....	.....	.....	.....	329,389	6,900,869	19,908,495	30,976,949	16,655,367	9,119,925
Lucien, Oklahoma	.....	.....	.....	290,151	2,903,269	3,744,015	4,542,441	5,046,528	3,324,328	3,017,480
South Burbank, Oklahoma	.....	.....	.....	.....	2,279,191	4,216,470	5,390,399	5,579,341	3,938,143	3,150,270
Eldorado-Augusta, Kansas	9,099,075	7,769,394	6,684,285	5,947,371	7,196,558	6,712,349	6,163,823	5,989,436	5,693,802	5,063,308
Trapp, Kansas	.....	.....	.....	.....	.....	.....	394,210	3,462,430	3,170,217	3,615,478
Silica, Kansas	.....	.....	.....	.....	.....	822,000	3,785,874	6,611,974	4,251,001	3,766,443
Burrton-Haury, Kansas	11,508	73,287	326,374	623,059	2,233,410	7,438,734	5,248,350	5,384,129	3,520,991	3,186,631
Caillou Island, Louisiana	.....	.....	.....	338,576	1,355,288	2,872,415	5,232,961	6,290,800	6,395,180	4,096,912
Gillis, Louisiana	.....	.....	.....	.....	46,727	2,172,351	5,653,087	5,083,156	3,163,248	2,194,595
Rodessa, Louisiana-Texas-Arkansas	.....	.....	.....	.....	.....	1,326,116	22,066,361	31,757,814	27,511,462	20,392,187
Caddo, Louisiana	4,379,614	3,345,157	2,617,094	2,282,948	2,243,704	1,574,060	2,394,818	2,363,804	2,365,656	2,572,400
Iowa, Louisiana	.....	17,312	466,164	3,370,962	5,311,703	7,249,167	6,648,058	6,235,381	5,643,319	4,431,018
Lafitte, Louisiana	.....	.....	.....	.....	.....	546,081	2,386,062	4,105,393	5,951,591	4,747,483
New Iberia, Louisiana	.....	.....	.....	.....	81,850	532,506	2,172,369	5,932,212	5,347,124	4,209,278
Jennings, Louisiana	611,020	246,285	306,628	395,978	445,648	673,752	806,446	2,954,872	7,469,709	8,432,723
Villa Platte, Louisiana	.....	.....	.....	.....	.....	.....	.....	.....	848,860	3,412,074
Smackover, Arkansas	18,755,335	12,044,935	9,716,628	8,897,531	8,019,709	7,433,432	7,265,767	6,917,464	6,543,519	7,116,508
Schuler, Arkansas	.....	.....	.....	.....	.....	.....	.....	1,197,090	6,193,314	6,421,056
Magnolia, Arkansas	.....	.....	.....	.....	.....	.....	.....	.....	107,199	3,589,627
Salt Creek, Wyoming	10,517,980	8,846,658	7,918,399	7,026,294	6,597,796	6,389,780	6,014,134	5,952,821	5,659,874	5,352,584
Lance Creek, Wyoming	61,161	94,507	36,727	30,670	114,795	710,108	1,813,991	4,290,301	4,655,349	6,617,919
Cut Bank, Montana	.....	.....	.....	264,598	1,144,105	2,210,194	3,283,437	3,346,405	2,770,760	3,484,515
Hobbs, New Mexico	9,459,319	14,596,714	11,768,252	11,210,908	12,437,853	11,062,508	9,043,343	7,310,713	5,039,849	4,400,629
Eunice, New Mexico	.....	.....	347,413	265,290	905,276	3,259,362	8,140,177	11,043,117	8,966,399	7,862,690
Monument, New Mexico	.....	.....	.....	.....	.....	231,132	3,576,317	10,968,485	9,451,048	8,206,415
Vacuum, New Mexico	.....	.....	.....	.....	.....	.....	.....	6,931	885,877	3,028,381
Salem, Illinois	.....	.....	.....	.....	.....	.....	.....	.....	2,620,250	50,179,099
Louden, Illinois	.....	.....	.....	.....	.....	.....	.....	.....	1,756,225	18,350,888
Buckeye, Michigan	.....	.....	.....	.....	.....	.....	10,475	6,428,299	7,346,607	2,484,099
Freeman-Redding, Michigan	.....	.....	.....	.....	.....	.....	.....	.....	882,182	4,890,802
Bradford-Allegany, Pa.-N. Y.	12,249,065	11,419,000	12,682,124	12,500,513	13,791,617	16,376,668	16,352,000	20,421,885	18,462,023	18,093,415

Decline in Crude Shipments; Increase in Refined Exports

PETROLEUM exports by the United States receded slightly in 1939 because a slump of nearly 5,000,000 bbl. in crude shipments more than offset an increase of a little more than 3,000,000 bbl. in the volume of refined products sent abroad.

Exports of refined products set a recent high record totaling 108,352,000 bbl. during the first 11 months of 1939, an increase over 1938 of nearly 3 per cent. The increase in exports of refined products was divided between gas oil and distillate fuels which gained 2,795,000 bbl.; lubricants which advanced 1,930,000 bbl. and kerosene which was up 890,000 bbl.

Gasoline shipments for 11 months at 41,423,000 bbl. were down by 3,262,000 bbl., a loss of 7.3 per cent. Only a minor reduction of 13,000 bbl. was suffered by residual fuels, exports of which totaled 16,170,000 bbl. for the first 11 months of 1939.

Part of the increase in crude-oil receipts from abroad was offset by declines in the importation of refined products. Total receipts of foreign petroleum is shown by the A.P.I. at 58,700,000 bbl. for 1939, an increase of 5,457,000 bbl., or 10.2 per cent. Receipts of foreign petroleum during 1939 averaged 160,822 bbl.

Direct domestic consumption of greater quantities of imported crude reflects larger receipts of Mexican and of Venezuelan oil.

The New York custom district remains by far the largest point of destination for imported petroleum. New York received more than 53 per cent of all 1939 imports, partly because of the fact that opportunities for fueling foreign boats are greater and because of the availability of refining capacity, as well as the nature of market requirements.

The reciprocal trade agreement with Venezuela under which a limited volume of oil will be permitted to enter the United States at half the previous tariff did not become effective until December 16. Consequently, 1939 statistics fail to reflect the reduced trade barrier.

Crude-oil imports reached their 1939 peak in May and June but continued substantially above the first quarter average for remainder of the year. The December crude imports were exceeded by every month of the year, except January, February and March, indicating there was no particular rush to take advantage of the lower tariff rate.

December imports of fuel oil were shown by the A.P.I. to have been slightly higher than those of November but still substantially lower than the monthly average of 1,911,917 bbl. for the entire year. Since the start of the year, however, fuel-oil imports have been at a higher rate largely because of the deficiency of supplies in this country.

Movement of California petroleum to the eastern coast increased 71 per cent last year totaling 8,201,000 bbl. of refined products and crude oil. Increased fuel-oil movement through the Panama Canal was largely responsible for the gain. California fuel oil received on the East Coast totaled 3,000,000 bbl. in 1939, an increase over 1938 of nearly 475 per cent. A more moderate increase of 25 per cent in East Coast receipts of gasoline totaling 3,232,000 bbl. for the year is shown.

California shipments of kerosene to Atlantic and Gulf ports were off nearly 21 per cent totaling 332,000 bbl. for the year but this was more than

(Continued on Page 196)

TABLE 1—IMPORTS AND EXPORTS FOR FIRST 11 MONTHS OF 1939

(Data from Bureau of Mines)

Exports

Year—	Crude oil (bbl.)	Ref. products (bbl.)	Gasoline (bbl.)	Kerosene (bbl.)	Gas oil (bbl.)	Fuel oil (bbl.)	Lubricants (bbl.)	Wax (lb.)
1939	67,417,000	108,352,000	41,423,000	7,591,000	30,023,000	16,170,000	10,871,000	218,061,000
1938	72,371,000	105,237,000	44,685,000	6,701,000	27,228,000	16,183,000	8,741,000	179,136,000
1937	62,118,000	98,529,000	35,864,000	8,223,000	28,108,000	14,333,000	10,138,000	209,788,000
1936	46,518,000	73,326,000	25,726,000	6,201,000	18,402,000	12,957,000	7,683,000	170,017,000
1935	47,280,000	69,262,000	27,137,000	6,137,000	*26,298,000	(*)	7,596,000	204,795,000

*Gas oil, distillate fuels and residuals undivided in statistics prior to 1936.

Imports

Year—	Crude oil: In bond	Crude oil: Domestic	Refinery products: In bond	Refinery products: domestic	Motor fuel: In bond	Motor fuel: Domestic	Gas oils, residuals: In bond	Gas oils, residuals: Domestic	Wax: In bond	Wax: Domestic
1939	4,419,000	26,348,000	17,668,000	6,379,000	70,000	45,000	14,381,000	878,000	1,570,000	33,929,000
1938	3,207,000	20,345,000	18,884,000	6,509,000	228,000	100,000	16,678,000	2,550,000	483,000	27,622,000
1937	1,774,000	23,318,000	10,605,000	16,853,000	244,000	.....	18,080,000	2,487,000	486,000	30,880,000
1936	2,262,000	27,451,000	16,893,000	5,492,000	.....	.....	16,214,000	980,000	742,000	15,199,000
1935	6,424,000	22,479,000	11,073,000	7,646,000	.....	20,000	10,762,000	4,357,000	.....	18,635,000

TABLE 2—IMPORTS OF CRUDE OIL AND REFINERY PRODUCTS FOR 1939 AT PRINCIPAL UNITED STATES PORTS

(Data from A.P.I. reports in barrels of 42 gal.)

Month—	Baltimore	Boston	New York	Philadelphia	Others	Total	Gulf Coast	Grand total	Crude oil	Gasoline	Fuel oil	Gas oil	Other pet. oils
January	156,000	35,000	2,008,000	760,000	96,000	3,055,000	369,000	3,424,000	1,779,000	.....	1,412,000	.....	233,000
February	329,000	83,000	1,739,000	719,000	103,000	2,973,000	499,000	3,472,000	1,701,000	.....	1,421,000	.....	350,000
March	327,000	130,000	2,379,000	691,000	223,000	3,750,000	273,000	4,023,000	1,686,000	.....	1,889,000	.....	448,000
April	426,000	133,000	2,947,000	1,054,000	55,000	4,615,000	223,000	4,838,000	2,979,000	.....	1,766,000	93,000	.....
May	592,000	815,000	3,678,000	649,000	534,000	6,268,000	573,000	6,481,000	4,123,000	.....	2,609,000	.....	109,000
June	518,000	435,000	3,528,000	1,026,000	565,000	6,072,000	500,000	6,572,000	4,068,000	.....	2,413,000	.....	91,000
July	384,000	216,000	2,753,000	1,189,000	247,000	4,789,000	479,000	5,268,000	2,799,000	.....	2,377,000	.....	92,000
August	572,000	227,000	3,113,000	1,024,000	108,000	5,044,000	631,000	5,675,000	3,109,000	.....	2,475,000	.....	91,000
September	349,000	271,000	2,408,000	1,009,000	148,000	4,185,000	592,000	4,777,000	3,112,000	90,000	1,502,000	.....	73,000
October	564,000	209,000	2,805,000	1,015,000	151,000	4,744,000	582,000	5,326,000	3,020,000	.....	2,306,000	.....	.....
November	649,000	200,000	2,748,000	703,000	153,000	4,453,000	224,000	4,677,000	3,247,000	65,000	1,365,000	.....	.....
December	363,000	141,000	1,166,000	928,000	534,000	3,132,000	675,000	3,807,000	2,312,200	.....	1,408,000	.....	87,000
Total, 1939	5,229,000	2,895,000	31,272,000	10,767,000	2,917,000	53,080,000	5,620,000	58,700,000	33,935,000	150,000	22,943,000	93,000	1,574,000
Total, 1938	5,284,000	1,843,000	28,379,000	10,437,000	2,970,000	48,913,000	4,330,000	53,243,000	26,843,000	79,000	24,300,000	.....	2,021,000
Total, 1937	5,210,000	2,957,000	30,085,000	10,746,000	3,489,000	52,487,000	4,490,000	56,977,000	27,883,000	145,000	26,374,000	470,000	2,305,000
Total, 1936	5,700,000	4,862,000	27,600,000	9,529,000	2,463,000	50,154,000	5,344,000	55,498,000	32,559,000	.....	21,561,000	635,000	743,000
Total, 1935	4,062,000	5,352,000	22,424,000	8,854,000	2,450,000	44,136,000	6,490,000	50,626,000	30,940,000	.....	19,686,000	.....	.....

TABLE 3—1939 RECEIPTS OF CALIFORNIA CRUDE OIL AND REFINERY PRODUCTS AT ATLANTIC PORTS

(Data from A.P.I. reports in barrels of 42 gal.)

Month—	Baltimore	Boston	New York	Philadelphia	Others	Total	Gulf Coast	Grand total	Gasoline	Kerosene	Fuel oil	Other pet. oils	Crude oil
January	42,000	.....	90,000	53,000	299,000	484,000	.....	484,000	.....	.....	431,000	53,000	.....
February	133,000	.....	268,000	.....	112,000	513,000	.....	513,000	182,000	58,000	212,000	.....	61,000
March	142,000	67,000	158,000	.....	.....	367,000	.....	367,000	106,000	.....	201,000	.....	60,000
April	78,000	.....	70,000	325,000	261,000	734,000	.....	734,000	281,000	70,000	124,000	197,000	62,000
May	200,000	.....	346,000	210,000	334,000	1,090,000	.....	1,090,000	589,000	.....	365,000	74,000	62,000
June	186,000	.....	165,000	157,000	168,000	676,000	.....	676,000	452,000	.....	131,000	93,000	.....
July	35,000	.....	389,000	282,000	247,000	933,000	.....	933,000	362,000	.....	426,000	35,000	.....
August	63,000	.....	140,000	306,000	325,000	834,000	.....	834,000	345,000	73,000	157,000	63,000	196,000
September	117,000	.....	169,000	280,000	148,000	714,000	.....	714,000	280,000	69,000	220,000	73,000	72,000
October	135,000	.....	145,000	184,000	248,000	712,000	95,000	807,000	294,000	32,000	224,000	31,000	226,000
November	40,000	71,000	141,000	.....	123,000	375,000	.....	375,000	45,000	30,000	225,000	75,000	.....
December	75,000	.....	241,000	150,000	62,000	528,000	146,000	674,000	296,000	.....	284,000	.....	94,000
Total, 1939	1,246,000	138,000	2,302,000	1,947,000	2,327,000	7,960,000	241,000	8,201,000	3,232,000	332,000	3,010,000	694,000	833,000
Total, 1938	974,000	.....	1,056,000	955,000	1,811,000	4,796,000	.....	4,796,000	2,588,000	420,000	524,000	640,000	624,000
Total, 1937	622,000	40,000	926,000	2,322,000	1,858,000	5,768,000	.....	5,768,000	3,904,000	449,000	758,000	527,000	130,000
Total, 1936	607,000	198,000	1,863,000	2,689,000	2,374,000	7,731,000	.....	7,731,000	5,823,000	995,000	621,000	292,000	.....
Total, 1935	767,000	420,000	2,303,000	3,307,000	2,897,000	9,694,000	.....	9,694,000	7,335,000	1,118,000	1,241,000	.....	.....
Total, 1934	1,821,000	3,201,000	9,389,000	4,891,000	7,515,000	26,827,000	.....	26,827,000	8,610,000	1,626,000	14,946,000	1,615,000	.....

Production Outside the U. S. Establishes New Record

By H. STANLEY NORMAN

WORLD OIL PRODUCTION OUTSIDE UNITED STATES

Country—	1939	1938	Daily average 1939	Daily average 1938
U.S.S.R.*	219,700,000	214,714,000	601,918	588,257
Venezuela	208,415,000	190,231,780	571,000	521,183
Iran (Persia)	77,000,000	77,230,000	210,959	211,589
Dutch East Indies†	66,791,000	62,240,870	182,989	170,523
Rumania	46,565,000	48,984,200	127,575	134,203
Mexico	40,965,000	38,506,000	112,234	105,496
Iraq	29,500,000	32,400,000	80,823	88,767
Colombia	22,998,000	21,660,720	63,008	59,344
Trinidad	19,265,000	17,737,060	52,781	48,595
Argentina	18,431,000	17,077,600	50,496	46,788
Peru	12,974,210	15,838,610	35,546	43,516
British India‡	9,750,000	9,829,700	26,712	26,931
Canada	7,743,300	6,966,100	21,214	19,085
Bahrein	7,500,000	8,298,000	20,548	22,734
Germany§	5,875,000	4,259,720	16,096	11,670
Egypt	5,100,000	1,660,000	13,971	4,548
Saudi Arabia	4,300,000	495,150	11,780	1,357
Poland¶	3,350,000	3,730,000	9,178	10,219
Japan (including Taiwan)	2,375,000	2,500,000	6,507	6,850
Ecuador	2,265,000	2,249,740	6,206	6,164
Hungary	1,100,000	324,850	3,014	890
Albania	921,650	437,600	2,525	1,199
France	506,950	510,550	1,389	1,399
Bolivia	191,600	135,400	525	371
Italy	91,250	106,100	250	291
Others	355,000	250,000	973	685
Total	814,028,960	778,373,750	2,230,216	2,132,531

*Includes Sakhalin and 3 months' production from the U.S.S.R. portion of Poland.
†Includes Sarawak and Brunei, which had combined total of 6,370,000 bbl. production during the year.
‡Burma included with British India.
§The German production figure now includes about 2,040 bbl. daily production from Austria and 330 bbl. daily from Slovakia and Moravia and 3 months' output of the Reich's part of Poland.
¶Figure for 1939 covers only 9 months. Last 3 months included in U.S.S.R. and Germany.

CRUDE-OIL production outside of the United States set another new all-time record in 1939 totaling 814,028,960 bbl., an increase of more than 4 per cent over the previous peak of 1938. The production record was established despite conditions that made normal operations difficult during the last quarter of the year. Statistics are incomplete for some of the belligerent nations and the production from some of the neutral countries is estimated on a basis of data for the first 10 or 11 months.

The 1939 production compares with a total of 778,373,750 bbl. produced outside of the United States during 1938.

From a volume standpoint Venezuela staged the chief production increase, moving forward from 190,231,780 bbl. produced in 1938 to an estimated total of 208,415,000 bbl. for 1939. The rate of Venezuelan production was modified during the last few weeks of the year to coincide with the slight curtailment of demand in the marketing territory largely served from that source. During October and part of November production was geared to meet the anticipated increase in demand from belligerent as well as neutral European countries and earlier estimates were that the total for the year would be from 1,000,000 to 2,000,000 bbl. greater than the figures shown. Restricted production activities during the last part of November and in December account for the scaling down of the final figure.

The increase of 9.5 per cent in Venezuela's production did not reflect the true operating conditions and results of 1939 exploration in that country, which is rapidly overhauling Soviet Russia as the second largest producing nation in the world. Unless Soviet production moves forward at a more vigorous pace this year, it is entirely possible that Venezuela will move into second position.

More than 40,000 bbl. daily of new Venezuelan production began moving to world markets from the new Oficina field early in December. Temporarily, at least, the Oficina production will displace other Venezuelan oil. Indications are that withdrawals of the heavy asphaltic-base crudes of the Lake Maracaibo district will be made at a more moderate rate. Shifting requirements of the market served by Venezuela, with a definite trend to the lighter products presages greater emphasis on the higher-gravity crudes now available from the Oficina, San Joaquin, Santa Ana, El Roble, and Jusepin fields in eastern Venezuela. Discovery of another new field in the State of Anzoategui by Standard Oil Co. of Venezuela's No. 1 Socororo (Pantepec) since the turn of the year indicates the scope of the possibilities in eastern Venezuela.

Soviet Russia's crude-oil production increased approximately 5,000,000 bbl. in 1939, a gain of about 2 per cent. Indications are given that Soviet Russia is preparing to step up its petroleum activity in 1940. Acceptable confirmation has been found of reports that representatives of the Soviet petroleum industry are currently placing orders for $20,000,000 worth of American drilling equipment. For the past few years Soviet engineers have concentrated on manufacture of drilling equipment in their own factories, patterned largely after American models. The recent purchases and equipment inquiries indicate that Soviet steel mills are either too occupied with other requirements or that an effort to speed up and improve exploration and exploitation work with proven tools is to be made.

Speculation over the implication of Soviet equipment purchases is that German technicians are taking a more prominent part in direction of the Russian oil industry. The Soviet is pushing with all speed development of the Ural-Volga section—the so-called "second Baku."

New production records were established by Colombia, Trinidad, and Argentina as well as Venezuela in the South American zone.

Colombian production increased more than 6 per cent, totaling about 22,998,000 bbl. for the year, a gain of 1,337,280 bbl. over 1938. Part of the increase came from the previously proven properties operated by Tropical Oil Co., a subsidiary of International Petroleum Co.

Colombian Petroleum Co. started producing on a routine basis from the Barco concession in eastern Venezuela in October and moved an average of 15,000 bbl. per day from the Petrolea field to South American and European markets for remainder of the year. Development of the Barco to commercial status required construction of South American Gulf Oil Co.'s pipe line through 260 miles of jungle to the west coast shipping terminal at Covenas.

Argentina

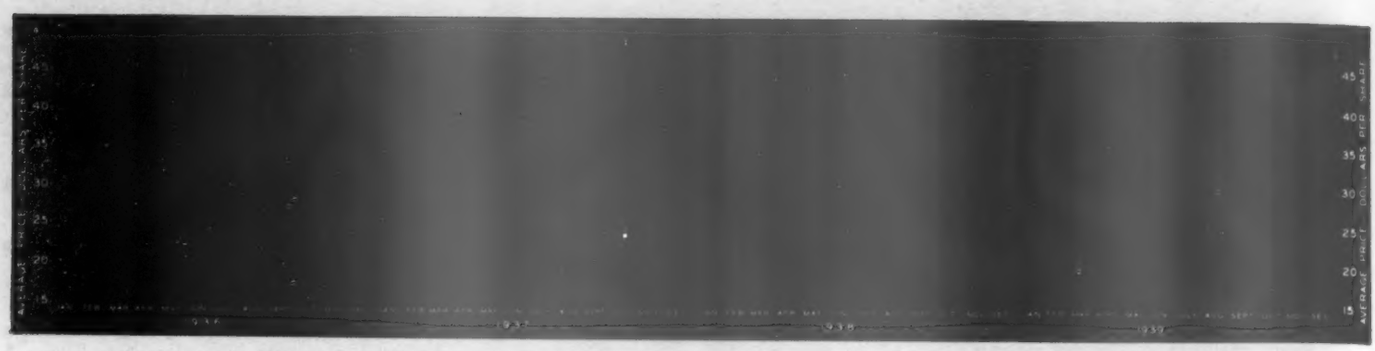
Activity of Yacimientos Petroliferos Fiscales, the Argentine Government oil company, was again extended in 1939 with result that another increase in production was scored. The Tupungato area in the Province of Mendoza supplied one of the important new developments. The last well completed by Y.P.F. in the Tupungato area produced at the initial rate of 105 bbl. per hour from total depth of 6,078 ft. An extension was proven during the year to the Plaza Huincul field, bringing into production acreage held by Standard Oil Co. of Argentina as well as sectors operated by Y.P.F. The Province of Salta was the only Argentina producing area to suffer a decline in 1939.

The most substantial production increase in Argentina was in Mendoza, with the larger and most important Comodoro Rivadavia field second from a standpoint of gain.

Argentina is estimated to have produced 18,431,000 bbl. of crude oil during 1939. Full commercial advantage of new producing areas and growing output is to be taken by Y.P.F., which is currently constructing two new small refineries in the interior provinces of Mendoza and Salta. Production declines in the Salta area have been restricted to Standard properties, increases being registered by Y.P.F. Declines in production by private companies is result of nationalist policies drastically restricting them in the matter of acquiring land for exploration purposes.

Bids were received late in December by the Y.P.F. organization from American contractors for the drilling of 75 to 100 wells during 1940 in the Comodoro Rivadavia field. Cessation of steel tubular goods shipments from European sources may have been a factor in this departure from previous operating practices. The drive by Y.P.F. to completely eliminate petroleum imports is another factor in efforts to stimulate production.

(Continued on Page 137)



Average of high and low quotations on 30 representative common oil stocks listed on New York markets. Uppermost point on each vertical line represents average of highs while the base represents average of lows. Data reflect market at close of each week

TRENDS in the market value of oil STOCKS

(Averages Compiled by Carl H. Pforzheimer & Co.)
Member New York Stock Exchange and New York Curb Exchange

1937	HIGH	LOW	CLOSE	1938	HIGH	LOW	CLOSE	1939	HIGH	LOW	CLOSE
January 2	42.22	40.08	41.05	January 8	30.15	27.38	29.89	January 7	29.89	28.86	29.09
January 9	42.97	40.45	42.15	January 15	31.03	29.31	30.30	January 14	29.19	28.17	28.58
January 16	42.98	41.23	42.15	January 22	30.52	29.10	29.45	January 21	29.04	28.18	28.37
January 23	43.25	41.27	42.94	January 29	29.62	27.02	27.25	January 28	28.12	26.34	26.97
January 30	43.81	41.80	43.03	February 5	28.31	26.76	27.75	February 4	27.96	27.06	27.68
February 6	44.44	42.20	43.45	February 12	28.74	27.21	28.42	February 11	27.78	27.09	27.34
February 13	44.28	42.61	43.35	February 19	29.50	27.99	29.42	February 18	27.73	27.03	27.42
February 20	44.03	42.44	43.17	February 26	31.01	29.47	30.28	February 25	27.75	26.85	27.37
February 27	43.39	41.49	42.37	March 5	30.41	28.98	29.26	March 4	27.93	26.85	27.90
March 6	43.83	41.90	43.25	March 12	29.28	27.62	27.99	March 11	28.70	27.44	28.40
March 13	45.26	42.82	43.94	March 19	28.9	26.6	27.3	March 18	28.53	26.72	26.86
March 20	44.48	42.05	42.52	March 26	27.79	24.18	24.41	March 25	27.31	26.15	26.64
March 27	43.15	40.94	42.79	April 2	25.14	22.89	24.64	April 1	26.77	24.52	25.07
April 3	44.50	42.22	43.95	April 9	26.99	24.36	26.84	April 8	25.72	23.09	23.15
April 10	44.86	41.54	42.89	April 16	28.07	25.80	27.98	April 15	24.89	22.64	24.57
April 17	44.63	42.35	43.57	April 23	28.33	26.47	27.75	April 22	25.17	23.46	24.89
April 24	44.47	42.01	42.26	April 30	27.49	25.91	26.19	April 29	25.24	24.21	24.50
May 1	42.40	39.46	41.77	May 7	27.74	25.83	27.57	May 6	25.09	24.12	24.79
May 8	42.54	40.97	41.39	May 14	27.89	26.23	26.55	May 13	25.28	24.50	24.89
May 15	41.32	38.79	39.87	May 21	26.55	25.25	25.32	May 20	25.10	24.18	24.66
May 28	41.67	40.47	40.97	May 28	25.71	24.14	24.55	May 27	25.69	24.43	25.40
June 5	40.97	39.59	40.57	June 4	25.52	24.51	25.38	June 3	25.68	24.77	25.16
June 12	41.19	34.38	39.54	June 11	26.39	25.12	25.87	June 10	25.89	24.84	25.71
June 19	39.71	37.79	39.31	June 18	26.04	25.05	25.82	June 17	25.72	24.62	25.53
June 26	39.81	38.55	39.29	June 25	29.21	25.95	28.97	June 24	25.43	24.76	24.92
July 3	40.75	38.27	40.58	July 2	31.12	28.53	30.90	July 1	24.92	23.53	23.88
July 10	42.20	40.83	41.58	July 9	31.49	29.90	30.73	July 8	24.38	23.73	24.00
July 17	43.02	41.53	42.51	July 16	32.17	29.99	31.39	July 15	24.83	23.92	24.88
July 24	43.55	41.18	43.01	July 23	32.60	31.05	32.15	July 22	25.46	24.33	25.00
July 31	43.27	41.55	42.59	July 30	32.64	30.76	31.32	July 29	25.26	24.32	24.64
August 7	42.92	41.87	42.09	August 6	29.50	28.76	29.18	August 5	24.87	23.88	24.05
August 14	43.44	41.76	43.03	August 13	31.64	29.32	29.58	August 12	24.13	23.13	23.33
August 21	43.43	40.89	41.28	August 20	30.46	29.42	40.04	August 19	23.86	22.96	23.20
August 28	41.89	39.58	39.93	August 27	30.61	29.03	29.23	August 26	23.49	22.09	23.18
September 4	40.64	38.27	38.94	September 3	29.35	28.01	28.95	September 2	25.58	22.29	24.99
September 11	38.52	34.93	35.59	September 10	29.19	27.88	28.03	September 9	30.22	27.84	29.41
September 18	37.31	34.19	35.30	September 17	28.34	25.89	26.46	September 16	30.86	28.64	29.20
September 25	35.51	32.04	32.40	September 24	28.27	26.09	26.73	September 23	29.97	27.92	29.42
October 2	34.88	31.98	34.28	October 1	29.09	25.31	28.92	September 30	29.78	28.23	29.11
October 9	34.54	31.62	32.40	October 8	29.93	27.94	28.45	October 7	29.51	27.95	28.88
October 16	32.33	29.19	29.82	October 15	28.70	27.08	27.93	October 14	29.34	28.30	28.89
October 23	31.65	24.45	28.90	October 22	29.14	27.29	28.78	October 21	29.78	28.57	29.14
October 30	32.61	28.14	31.90	October 29	29.40	28.10	28.36	October 28	29.44	28.37	28.81
November 6	31.55	28.80	29.03	November 5	28.98	27.93	28.55	November 4	29.05	27.07	28.80
November 13	30.92	28.33	30.23	November 12	29.87	28.40	29.53	November 10	28.58	27.37	27.57
November 20	30.53	26.92	27.54	November 19	29.58	28.14	28.50	November 18	28.09	26.93	27.51
November 27	28.33	25.79	27.96	November 26	29.02	28.07	28.41	November 25	27.85	26.63	26.97
December 4	29.23	26.99	28.61	December 3	28.78	27.63	28.14	December 2	27.14	25.94	26.22
December 11	29.11	27.50	28.09	December 10	28.59	27.42	28.73	December 9	28.62	25.78	26.03
December 18	28.86	26.97	28.52	December 17	29.21	27.57	28.63	December 16	26.29	25.18	25.78
December 24	29.45	27.97	28.49	December 24	28.93	27.81	28.50	December 23	26.40	25.34	26.03
December 31	28.50	26.41	27.42	December 31	29.88	27.91	29.52	December 30	26.77	25.58	26.43

Thirty companies whose common stocks make up the average values shown above: Amerada, Atlantic, Barnsdall, Consolidated, Continental, Creole, Gulf, Humble, Imperial, International, Mid-Continent, Ohio, Phillips, Plymouth, Pure Oil, Seaboard Oil, Shell Union, Skelly, Socony, South Penn, Standard of California, Standard of Indiana, Standard of Kentucky, Standard of New Jersey, Standard of Ohio, Sun, Texas Co., Texas Pacific Coal & Oil, Tide Water Associated, and Union Oil Co.

Drivers Paid 13.29 Cents for Gasoline in 1939, Not to Mention the Tax

By T. F. SMILEY

THE United States motorist paid an average of 13.29 cents a gallon for his gasoline during 1939, if he is considered as a composite of car owners in the 50 representative cities selected by The Oil and Gas Journal for statistical purposes and if he bought the regular grade. In addition he pressed into the hand of the service-station operator 5.42 cents for the tax collector. This too is an average for the country. The 18.71 cents total compares with 19.33 cents paid in 1938.

The average of 13.29 cents was arrived at by taking the average pump prices in the 50 cities on the first day of each month as a basis. It was the lowest average retail price recorded since 1933, when the figure was 12.76 cents.

The motorist in Boise, Idaho, had to delve deepest into his pocket. He was paying 25.1 cents a gallon during the last 3 months of the year, that price including 6 cents tax. Helena, Mont., was the runner-up, the price in that city being 24.5 cents, including tax of 6 cents.

Wichita, Kans., long holder of the low-price championship, was elbowed from first place by Providence, R. I. In Wichita at the close of the year the car owner was getting his tank filled at 14.6 cents a gallon, but the same operation was being performed in Providence at 14 cents. The price in each case included 4 cents tax.

The 50-city price in 1938 was 13.91 cents, 0.62 cent higher than the 1939 average. Notwithstanding this fact, the average on January 1, 1939, was 0.21 cent less than that which existed January 1, 1940. The average price on the first-named date was 13.23 cents and on the later one 13.44 cents. The table showing the "Year-to-Year Trend of Retail Gasoline Prices" reveals that sagging prices during the spring and early summer almost offset the slightly better ones that prevailed in the fall. Price cutting in upper New York and at points along the Atlantic seaboard goes far to explain this softness.

Other regions had price wars too. There was savage underselling in the Chicago district, North Texas and parts of Oklahoma.

In tranquil contrast was the Pacific Coast territory, where pump prices in the key cities did not change throughout the 12 months.

The prices in effect January 1, 1940, compared with those of January 1, 1939, show advances in 27 cities and declines in 12, with 11 finishing just where they started. In seven cities the same price was in effect during the entire year. Others witnessed only one or two changes. Jackson, Miss., which began the year at 11 cents (exclusive of tax) and closed it at 13.5, recorded the widest upward spread. The biggest drop was in Omaha, Neb., where the price was 13 cents on January 1, 1939, and 10.5 at the year's end. At periods between the year's opening and its close wider fluctuations than these were seen. For example, Salt Lake City, Utah, motorists were paying for a while in December 3.5 cents less a gallon than they did at the start of 1939.

Considering the cities in geographical groupings, those in the Atlantic and New England states experienced the sharpest change, the average price in that area being 12.2 cents on January 1, 1940, compared with 11.7 cents on January 1, 1939. The West Coast recorded no change at all, the average price being 14.83 cents during the whole twelvemonth. There were minor changes in the other areas.

Various factors figured in the price fluctuations. Fundamental weaknesses in the refinery market inevitably threw their shadow over the retail market too. Swollen inventories of gasoline, which impelled many plant operators to slash their prices to bargain-hunting jobbers, made it easy for service stations supplied by these jobbers to undersell competing retailers who had paid established prices to refiners. Thus price wars began, spreading market demoralization.

In May, Standard Oil Co. (Indiana) initiated a series of tank-wagon advances designed to lift prices wherever they were subnormal. On June 23 Sinclair Refining Co. aroused the oil industry by raising tank-wagon prices a half cent throughout the 42 states in which it operates. Other companies, large and small, fell into line. Retail prices

Year-to-Year Trend of Retail Gasoline Prices

Average Service-Station Prices in Cents in 50 Representative Cities, Exclusive of Tax

	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
January 1	17.23	14.56	12.87	12.54	14.32	12.90	13.70	14.09	14.08	13.23
February 1	16.96	14.83	12.97	11.63	13.87	13.16	14.21	14.10	14.07	12.80
March 1	16.28	14.86	12.91	11.49	14.18	13.22	14.22	14.46	13.99	13.01
April 1	15.92	13.68	13.18	11.58	14.57	13.28	13.87	14.47	14.12	13.08
May 1	16.95	12.40	13.59	11.00	13.55	13.64	14.27	14.55	14.08	13.20
June 1	17.01	12.21	13.68	10.82	13.93	13.90	14.31	14.58	14.06	13.27
July 1	16.56	12.46	14.21	13.06	14.06	14.00	14.26	14.42	14.08	13.52
August 1	16.47	12.41	14.02	13.52	13.98	14.10	14.24	14.54	14.08	13.40
September 1	16.26	12.21	13.65	14.00	13.89	13.78	14.21	14.53	13.97	13.49
October 1	15.93	12.34	12.46	14.45	13.55	13.42	14.07	14.49	13.75	13.40
November 1	15.41	12.32	13.04	14.30	11.92	13.46	13.99	14.45	13.39	13.61
December 1	14.96	12.89	12.96	14.17	12.43	13.69	13.97	14.13	13.27	13.44
Average	16.33	13.09	13.30	12.76	13.60	13.55	14.11	14.40	13.91	13.29

Comparison of Net Service-Station Prices January 1, 1939, and January 1, 1940

Atlantic and New England States

	Jan. 1 1939	Jan. 1 1940
Portland, Me.	11.67	12.5
Burlington, Vt.	13.2	13.5
Hartford, Conn.	11.0	12.0
Boston, Mass.	11.0	11.5
New York, N. Y.	11.4	12.5
Philadelphia, Pa.	11.5	12.5
Providence, R. I.	11.0	10.0
Newark, N. J.	12.2	12.9
Baltimore, Md.	12.25	12.25
Dover, Del.	11.0	12.0
Washington, D. C.	12.5	12.5
Average	11.7	12.2

Central

Fargo, N. D.	14.7	15.7
Huron, S. D.	14.0	14.0
Wichita, Kans.	10.1	10.6
Omaha, Neb.	13.0	10.5
Tulsa, Okla.	10.0	10.0
Dallas, Tex.	12.0	11.0
Little Rock, Ark.	13.25	13.75
Kansas City, Mo.	11.4	12.4
Des Moines, Iowa	12.9	11.9
Duluth, Minn.	13.9	13.9
Minneapolis, Minn.	13.0	13.5
Milwaukee, Wis.	13.3	12.9
Chicago, Ill.	11.6	12.6
Peoria, Ill.	12.6	12.2
Detroit, Mich.	11.1	11.6
Indianapolis, Ind.	13.8	12.8
Cleveland, Ohio	13.0	11.5
Average	12.57	12.4

Southeastern

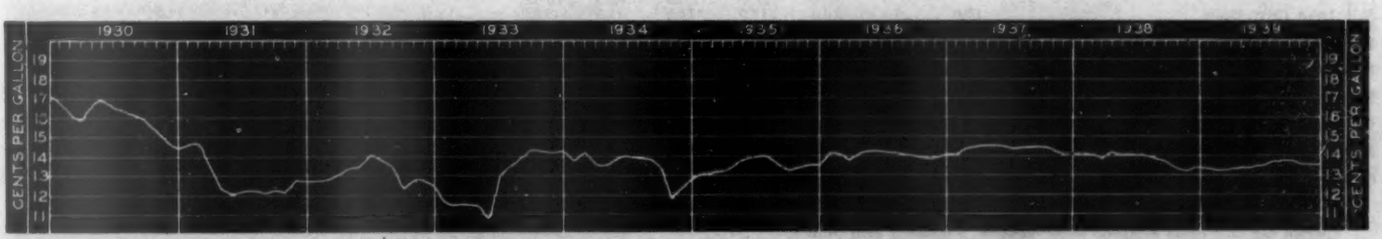
	Jan. 1 1939	Jan. 1 1940
Norfolk, Va.	13.25	13.75
Charleston, W. Va.	14.05	14.55
Louisville, Ky.	11.5	13.0
Memphis, Tenn.	14.0	13.5
Atlanta, Ga.	14.0	15.0
Charlotte, N. C.	14.65	14.9
Charleston, S. C.	13.25	13.75
Jackson, Miss.	11.0	13.5
Birmingham, Ala.	14.0	14.5
New Orleans, La.	12.75	13.25
Jacksonville, Fla.	12.0	12.0
Average	13.13	13.8

Midwestern

Helena, Mont.	18.0	18.5
Boise, Idaho	17.0	19.1
Casper, Wyo.	16.0	16.5
Reno, Nev.	16.5	16.5
Salt Lake City, Utah	15.0	14.5
Denver, Colo.	16.0	16.0
Phoenix, Ariz.	16.5	15.0
Albuquerque, N. M.	15.0	14.5
Average	16.25	16.33

Western Coast

San Francisco, Calif.	14.5	14.5
Portland, Ore.	15.0	15.0
Seattle, Wash.	15.0	15.0
Average	14.83	14.83



in most cases rose automatically with the tank-wagon advances. But a few important refiners failed to join in the movement. As a result competing companies which had raised their prices had to lower them to the old figure. In a few weeks tank-wagon and retail prices, including those of Sinclair, had returned to former levels.

New Orleans, La., relinquished the place it had held for years as the most gasoline-taxed city in the country. The 10 cents on each gallon which motorists formerly contributed to the upkeep of various governmental activities dropped to 8 cents with the removal in September of the 2-cent parish tax. This left New Orleans on the same basis as other Louisiana cities, still heavily taxed, but in better case than some municipalities in Alabama and Florida, which must give the station attendant 9 cents tax for each gallon of gasoline in addition to the cost of the gasoline itself.

Car owners in North Dakota were paying 1 cent more tax at the close of the year than at its beginning, the state gasoline tax having been raised that much last July. The effect of these changes nationally was to reduce the average tax from 5.42 cents a gallon to 5.40 cents.

Washington, D. C., maintaining its tax of only 3 cents, continued to laugh at the other cities.

Gasoline Service-Station Prices in Effect During 1939, Exclusive of Taxes, in 50 Representative Cities, With Price Changes and Dates

Gasoline taxes in effect January 1, 1939, and January 1, 1940

	Price Jan. 1, 1939										Price Jan. 1 1940	Tax Jan. 1, 1939	Tax Jan. 1, 1940
Birmingham, Ala.	14.0	2/1 13.0	4/19 11.5	4/27 14.0	5/25 13.5	6/20 14.0	9/18 14.5	....	....	....	....	14.5	8.0	8.0
Phoenix, Ariz.	16.5	7/13 15.0	....	....	....	....	....	....	....	....	....	15.0	6.0	6.0
Little Rock, Ark.	13.25	9/14 13.75	....	....	....	....	....	....	....	....	....	13.75	7.5	7.5
San Francisco, Calif.	14.5	....	....	....	....	....	....	....	....	....	....	14.5	4.0	4.0
Denver, Colo.	16.0	6/15 16.5	7/28 14.5	8/23 16.0	....	....	....	....	....	....	....	16.0	5.0	5.0
Hartford, Conn.	11.0	2/10 11.5	8/24 12.0	....	....	....	....	....	....	....	....	12.0	4.0	4.0
Washington, D. C.	12.5	9/30 13.0	....	....	....	....	....	....	....	....	....	12.5	3.0	3.0
Dover, Del.	11.0	2/10 12.0	4/6 12.5	10/13 13.0	12/19 12.0	....	....	....	....	....	....	12.0	5.0	5.0
Jacksonville, Fla.	12.0	3/1 11.0	4/20 12.0	6/20 12.5	9/12 12.0	9/9 11.0	9/18 11.5	10/5 11.0	12/19 12.0	....	....	12.0	8.0	8.0
Atlanta, Ga.	14.0	1/14 13.0	1/19 12.0	3/1 13.0	3/8 12.0	4/26 14.0	6/20 14.5	8/26 14.0	9/8 15.0	10/14 14.0	10/24 15.0	15.0	7.0	7.0
Boise, Idaho	17.0	3/14 17.1	3/23 18.1	6/15 18.6	10/6 19.1	....	....	....	....	....	....	19.1	6.0	6.0
Chicago, Ill.	11.6	5/23 12.6	....	....	....	....	....	....	....	....	....	12.6	4.0	4.0
Peoria, Ill.	12.6	5/23 13.1	11/21 12.2	....	....	....	....	....	....	....	....	12.2	4.0	4.0
Indianapolis, Ind.	13.8	11/20 12.8	....	....	....	....	....	....	....	....	....	12.8	5.0	5.0
Des Moines, Iowa	12.9	11/13 11.9	....	....	....	....	....	....	....	....	....	11.9	4.0	4.0
Wichita, Kans.	10.1	3/16 10.6	4/12 10.1	6/8 10.6	6/17 11.1	6/27 10.1	11/15 10.6	....	....	....	....	10.6	4.0	4.0
Louisville, Ky.	11.5	6/12 12.5	6/20 13.0	....	....	....	....	....	....	....	....	13.0	6.0	6.0
New Orleans, La.	12.75	9/12 13.25	....	....	....	....	....	....	....	....	....	13.25	10.0	*8.0
Portland, Me.	11.67	5/18 10.0	6/13 9.29	8/24 11.67	10/11 12.5	....	....	....	....	....	....	12.5	5.0	5.0
Baltimore, Md.	12.25	....	....	....	....	....	....	....	....	....	....	12.25	5.0	5.0
Boston, Mass.	11.0	2/10 10.29	8/24 11.0	10/4 11.5	....	....	....	....	....	....	....	11.5	4.0	4.0
Detroit, Mich.	11.1	6/17 11.6	10/31 10.9	11/11 9.9	11/18 11.6	....	....	....	....	....	....	11.6	4.0	4.0
Duluth, Minn.	13.9	....	....	....	....	....	....	....	....	....	....	13.9	5.0	5.0
Minneapolis, Minn.	13.0	3/16 13.5	....	....	....	....	....	....	....	....	....	13.5	5.0	5.0
Jackson, Miss.	11.0	6/1 12.0	6/20 12.5	9/18 13.0	11/5 13.5	....	....	....	....	....	....	13.5	7.0	7.0
Kansas City, Mo.	11.4	3/16 11.9	6/8 12.4	....	....	....	....	....	....	....	....	12.4	4.0	4.0
Helena, Mont.	18.0	1/27 17.0	6/8 18.0	6/15 18.5	....	....	....	....	....	....	....	18.5	6.0	6.0
Omaha, Neb.	13.0	2/8 11.5	3/23 12.0	5/10 13.5	10/5 12.9	11/3 12.4	11/7 11.9	11/9 10.9	11/13 10.5	....	....	10.5	6.0	6.0
Reno, Nev.	16.5	....	....	....	....	....	....	....	....	....	....	16.5	5.0	5.0
Newark, N. J.	12.2	9/12 12.9	....	....	....	....	....	....	....	....	....	12.9	4.0	4.0
Albuquerque, N. M.	15.0	1/6 13.5	3/21 14.0	3/22 14.5	....	....	....	....	....	....	....	14.5	6.5	6.5
New York, N. Y.	11.4	3/22 10.5	4/27 11.3	6/13 11.8	8/1 11.4	9/14 12.0	11/27 12.5	....	....	....	....	12.5	5.0	5.0
Charlotte, N. C.	14.65	5/18 14.4	9/30 14.9	....	....	....	....	....	....	....	....	14.9	7.0	7.0
Fargo, N. D.	14.7	7/1 15.7	....	....	....	....	....	....	....	....	....	15.7	4.0	†5.0
Cleveland, Ohio	13.0	5/5 12.5	11/9 11.5	....	....	....	....	....	....	....	....	11.5	5.0	5.0
Tulsa, Okla.	10.0	1/12 9.0	3/14 10.0	4/25 11.0	6/9 12.0	10/18 11.0	12/14 10.0	....	....	....	....	10.0	5.0	5.0
Portland, Ore.	15.0	....	....	....	....	....	....	....	....	....	....	15.0	6.0	6.0
Philadelphia, Pa.	11.5	2/10 12.0	5/6 11.5	5/16 12.0	10/3 12.5	....	....	....	....	....	....	12.5	5.0	5.0
Providence, R. I.	11.0	7/16 10.29	10/1 10.0	10/4 10.5	12/1 10.0	....	....	....	....	....	....	10.0	4.0	4.0
Charleston, S. C.	13.25	9/30 13.75	....	....	....	....	....	....	....	....	....	13.75	7.0	7.0
Huron, S. D.	14.0	....	....	....	....	....	....	....	....	....	....	14.0	5.0	5.0
Memphis, Tenn.	14.0	11/24 13.5	....	....	....	....	....	....	....	....	....	13.5	8.0	8.0
Dallas, Tex.	12.0	1/24 10.0	5/23 12.0	6/20 13.0	10/24 11.0	....	....	....	....	....	....	11.0	5.0	5.0
Salt Lake City, Utah	15.0	3/23 16.0	6/15 16.5	11/9 14.5	11/25 *12.5	12/4 11.5	12/26 14.5	....	....	....	....	14.5	5.0	5.0
Burlington, Vt.	13.2	2/10 12.7	3/17 12.0	6/13 13.0	7/6 12.0	7/26 11.5	9/19 12.0	10/11 12.5	10/31 13.7	12/4 13.5	....	13.5	5.0	5.0
Norfolk, Va.	13.25	9/30 13.75	....	....	....	....	....	....	....	....	....	13.75	6.0	6.0
Seattle, Wash.	15.0	....	....	....	....	....	....	....	....	....	....	15.0	6.0	6.0
Charleston, W. Va.	14.05	9/30 14.55	....	....	....	....	....	....	....	....	....	14.55	6.0	6.0
Milwaukee, Wis.	13.3	1/13 12.3	1/24 11.9	5/27 12.4	6/17 12.9	....	....	....	....	....	....	12.9	5.0	5.0
Casper, Wyo.	16.0	6/15 16.5	....	....	....	....	....	....	....	....	....	16.5	5.0	5.0
Average price	13.23	....	....	....	....	....	....	....	....	....	....	13.44	5.42	5.4

*Parish tax of 2 cents removed in September. †Raised 1 cent July 1.

Market in Refined Products Presents Varied Picture as 1939 Closes

By T. F. SMILEY

THE market in refined-oil products presented a varied picture as 1939 closed. Some divisions were riding high. Others were crawling about in the cellar. Under the stimulus of war demand, lubricating oils and paraffin wax had risen with lightning swiftness. Fuel oils, especially the light domestic grades, were buoyant. But motor fuel and natural gasolines were having hard going.

Not since the boom period following the World War has paraffin wax commanded such prices as those established in the final quarter of last year. The 124-126 crude scale wax was bringing 6⅝ to 6⅞ cents a pound in the Mid-Continent market, and the average for the year was 3½ cents. In 1932 that product sold for 1⅝ cents and the average for the year was 1.7 cents.

Lubricating oils, which for 2 years had been floundering through a dismally soft market, acquired sudden life that sent them skyward. The 190-200 D bright stock, 15-25 pour, which long had carried a nominal quotation of 19 cents, but was obtainable for less, quickly leaped to 24 cents after the European war opened, and as the year closed it was vigorous at 28 cents. Other grades rose correspondingly. Neutrals performed in much the same fashion. The eastern markets for both lubricants and wax acted in concert with those in the Mid-Continent.

On the oil industry's "money product," gasoline, the effects of the war were in sharp contrast. Before hostilities began, the 15-day well shutdown in six states last August energized a laggard motor-fuel market. When the war broke, gasoline began moving to Gulf ports in preparation for predicted export orders. For a few weeks the trade was buoyantly expectant. But instead of going oversea, the material remained at Gulf terminals and refineries, both because export demand failed to develop and because even cargoes ordered were kept in harbor by ocean perils. Scarcity of tankers and high charter rates kept coastwise movement to a low level. Congestion at the Gulf had a demoralizing effect on the market. Prices sagged.

But the basic reason for the poor showing made by gasoline was not failure of war demand to provide the market expected. It was persistent overproduction, which resulted in the country's stocks totaling 80,985,000 bbl. at the year's end. This, according to petroleum analysts, was in the neighborhood of 10,000,000 bbl. above the level of economic soundness.

Position of Stocks Improved

The country's gasoline stocks at the opening of 1939 were in distinctly more favorable position than they had been a year earlier, and plant operations were more nearly in balance with demand. But in April the runs to stills shot above the previous year's, and they remained well above throughout the rest of 1939. By midsummer all January's advantages had been lost. Stocks climbed past those of 1938, and at the end of December they exceeded those of the corresponding date in 1938 by 7½ million barrels. Increased domestic consumption had more than offset losses in oversea business, making it clear that guilt for the gasoline market's plight lay at the door of overproduction.

In the Mid-Continent, considered a barometer of the gasoline market, the highest tank-car price paid for the regular (70-72 octane) grade was 5¼ cents, that price prevailing for a few weeks under the influence of the abortive war boom. Thus it failed even to reach the 5½ cents which had ruled for a little while in 1938, also a bad year. To yield a reasonable profit it is held that regular-grade gasoline should bring the Mid-Continent refiner 6 cents.

Natural gasoline pursued an erratic course. Opening the year at 3¾ cents a gallon in Oklahoma, the 26-70 grade quickly dropped to 2½ cents, where it stayed till early summer, when it made minor advances. In August prices shot upward suddenly, the 26-70 rising from 3 cents to 4 cents in 1 week as the crude shutdowns automatically cut off casing-head supplies from wells affected. The naturals went up another quarter cent in September and they remained at that level till early December. There, under pressure resulting from impaired ocean transportation, they broke into a retreat that swiftly carried them back to their starting point.

Abnormally prolonged warm weather prevented domestic fuels from making as brilliant a record as had been forecast; but as the year closed, this division was gaining vigor. All burning-oil prices soared spectacularly in the Atlantic Coast region in late December as a result of high tanker rates, which all but prohibited shipments from the Gulf Coast. Demand for both light and heavy fuels was definitely higher than it had been in 1938, significant of rising industrial activity and of increased installations of domestic heating devices.

Stocks of gas and fuel oils, which began the year with an excess of 25,000,000 bbl. over those of the corresponding date in 1938, fell rapidly. At the end of December they were 15,000,000 bbl. below the mark of the preceding year. This combination of dwindling inventories and rising consumption spurred plant operations to such a degree that they were an important factor in the accumulation of unwieldy stocks of gasoline.

Scarcity of boats for coastwise shipment of oil products, along with the flight in tanker rates, carried Bunker C fuel oil to $1.50 a barrel at Atlantic seaboard points in late December, the highest price in 12 years. Marine diesel oil advanced 20 cents a barrel at the same time to $2.10. Tanker rates tripled after the war started.

Steadily increasing weakness of the crude market, aggravated by unrestricted production in the new Illinois field, became acute in August, when

AVERAGE YEARLY PRICES ON MOST IMPORTANT REFINERY PRODUCTS, 1930 TO JANUARY 1, 1940

(Prices in Tank Car at Plant)

OKLAHOMA

	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930
U. S. Motor gasoline (regular grade), per gallon	$.0487	$.0503	$.0582	$.0588	$.0492	$.0444	$.0363	$.0392	$.0345	$.0634
Natural gasoline, 26-70 (AA grade), per gallon	.0317	.0271	.0367	.0361	.0320	.0260	.0290	.0222	.0301	.0524
41-43 water-white kerosene, per gallon	.0367	.0407	.0413	.0365	.0353	.0322	.0279	.0315	.0231	.0358
Fuel oil, 8 to 14 gravity, per barrel	.4597	.5509	.7780	.6619	.6232	.5930	.3899	.3250	.2904	.5225
U.G.I. gas oil, per gallon	.0267	.0208	.0289	.0251	.0233	.0201	.0146	.0146	.0127	.0227
200 vis. neutral, 3 color (15-25 pour point), per gallon	.11	.1000	.0996	.1043	.1075	.0994	.0845	.0834	.0924	.1059
150-160 D color bright stock, per gallon	.1674	.1491	.1859	.1769	.1496	.2030	.1852	.1837	.1631	.2977
124-126 wax, per pound	.0350	.0230	.0286	.0245	.0224	.0346	.0253	.0170	.0174	.0216
Crude (36 A.P.I. gravity), per barrel	1.02	1.19	1.21	1.10	1.00	1.00	.62	.88	.63	1.23

CALIFORNIA

	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930
U. S. Motor gasoline (low octane), per gallon	$.0621	$.0677	$.0737	$.0602	$.0552	$.0624	$.0523	$.0546	$.0510	$.0806
Natural gasoline, 75-85, 375 end point, per gallon	.0598	.0639	.0676	.0617	.0506	.0575	.0462	.0447	.0418	.0712
38-43 kerosene, per gallon	.0473	.0510	.0432	.0339	.0409	.0458	.0384	.0398	.0425	.0455
27 plus diesel*	.9466	1.19	1.175	1.035	1.084	1.032	.8406	.7432	.7510	.8365
Crude (25 A.P.I. gravity, Signal Hill) per barrel	1.03	1.03	1.03	.997	.85	.94	.84	.83	.76	1.16

PENNSYLVANIA

	1939	1938	1937	1936	1935	1934	1933	1932	1931	1930
U. S. Motor gasoline (below 60 octane), per gallon	$.0453	$.0487	$.0544	$.0565	$.0521	$.0519	$.0505	$.0568	$.049	$.0737
45 water white kerosene, per gallon	.0485	.0501	.0507	.0504	.0467	.0448	.0446	.0451	.04	.0501
Bright stock, 10-15 pour point, per gallon	.2079	.1671	.2422	.2361	.1990	.2540	.2407	.2466	.2094	.3373
Crude in National Transit Lines (Bradford field), per barrel	2.06	1.89	2.64	1.42	2.17	2.47	1.86	1.88	1.81	2.55

*1936, 1937, 1938, and 1939 prices are on 24 plus diesel.

national output for 1 week reached the daily average of 3,836,753 bbl. One major company slashed its posted prices for crude 20 cents in Mid-Continent and Gulf Coast fields. Other companies met the cut. Six states joined in a 2 weeks shutdown of wells, which carried daily average production down to 1,445,494 bbl., a drop of 2,391,259 from its recently recorded peak. Marked improvement followed the production holiday, and the crude market exhibited evidence of better health as the year ended.

California's oil industry was in a stronger statistical position at the close of 1939 than at its beginning. The improved conditions were ascribed to reorganization of voluntary measures for curtailment, which included adoption of a uniform curtailment formula for crude production. As a result of this action California's petroleum production fell below domestic and offshore requirements, and substantial withdrawals were made from inventories.

AVERAGE DOMESTIC AND EXPORT REFINERY PRICES DURING PAST THREE YEARS

(QUOTATIONS F.O.B. PLANTS AND TERMINALS)

	1939					1938					1937				
GASOLINES—															
Oklahoma (Group 3):	Av. pr.			1st	2d	Av. pr.			1st	2d	Av. pr.			1st	2d
U. S. Motor grades:	for yr.	High	Low	6 mos.	6 mos.	for yr.	High	Low	6 mos.	6 mos.	for yr.	High	Low	6 mos.	6 mos.
Regular, 70-72 octane	$.0487	$.0525	$.0438	$.0464	$.0510	$.0503	$.0550	$.0437	$.0510	$.0496	$.0582	$.0613	$.05	$0.594	$.0570
Third grade, below 62 octane	.0405	.0450	.0325	.0377	.0433	.0415	.0475	.0337	.0417	.0414	.0475	.0513	.04	.0488	.0462
60-62 400, below 60 octane	.0405	.0450	.0325	.0376	.0433	.0415	.0475	.0337	.0417	.0414	.0475	.0513	.04	.0488	.0462
North Texas:															
U. S. Motor, below 62 octane	.0405	.0450	.0325	.0376	.0433	.0416	.0475	.0337	.0418	.0414	.0475	.0513	.04	.0487	.0462
Pennsylvania:															
U. S. Motor, below 60 octane	.0453	.05	.0425	.0438	.0468	.0487	.0525	.0425	.0488	.0486	.0544	.06	.0450	.0528	.0559
California:															
54-58, U. S. Motor	.0621	.0650	.06	.0619	.0623	.0677	.0750	.0650	.0690	.0664	.0737	.0750	.07	.0725	.0750
New York (Bayonne, N. J.):															
65 octane and above	.0618	.0650	.06	.0608	.0627	.0666	.0712	.0650	.0673	.0658	.0745	.08	.0675	.0721	.0769
Gulf Coast (domestic):															
U. S. Motor, 65-67 octane	.0498	.0625	.0450	.0454	.0541	.05	.0537	.0450	.0525	.0476	.0598	.0650	.0538	.0587	.0609
U. S. Motor, 68-70 octane	.0526	.0650	.0512	.0472	.0579	.0523	.0550	.0462	.0549	.0498	.0620	.0650	.0550	.0619	.0620
NATURAL GASOLINES—															
Oklahoma (Group 3):															
Grade 26-70	.0317	.0425	.0250	.0265	.0368	.0271	.0375	.02	.0236	.0305	.0367	.0450	.03	.0337	.0397
Grade 18-55	.0376	.0512	.0275	.0315	.0436	.0317	.0437	.0237	.0280	.0353	.0439	.0538	.0350	.0405	.0473
California:															
75-85 375-390	0598	.0650	.0550	.0630	.0566	.0639	.0675	.0625	.0650	.0627	.0676	.07	.0675	.0677	.0675
KEROSENE—															
Oklahoma (Group 3):															
41-43 water white	.0367	.0388	.0337	.0378	.0356	.0407	.0425	.0387	.0415	.0398	.0413	.0425	.0388	.0416	.0410
North Texas:															
41-43 water white	.0377	.0475	.0337	.0397	.0356	.0407	.0425	.0387	.0415	.0399	.0417	.0438	.0388	.0422	.0412
Pennsylvania:															
45 water white	.0485	.05	.0450	.0489	.0481	.0501	.0550	.0462	.0517	.0485	.0507	.0550	.0463	.0490	.0524
California:															
38-43 high burning test	.0473	.0475	.0450	.0475	.0471	.0510	.06	.0475	.0530	.0490	.0432	.0550	.0325	.0384	.0480
New York (Bayonne, N. J.):															
41-43 water white	.0460	.0520	.0437	.0450	.0469	.0515	.0630	.0462	.0567	.0462	.0573	.0630	.05	.0556	.0590
Gulf Coast:															
41-43 water white	.0391	.0450	.0350	.0370	.0411	.0428	.05	.0387	.0461	.0395	.0508	.0550	.0378	.0508	.0507
FURNACE OILS AND TRACTOR FUELS—															
Oklahoma (Group 3):															
38-42, No. 1 prime white	.0336	.0363	.0312	.0340	.0331	.0381	.0412	.0362	.0390	.0373	.0392	.0413	.0378	.0389	.0396
38-40, No. 1 straw	.0322	.0350	.03	.0327	.0317	.0368	.04	.0350	.0377	.0359	.0372	.04	.0363	.0369	.0375
32-36, No. 2 straw	.0303	.0338	.0275	.0304	.0302	.0350	.0387	.0300	.0351	.0349	.0355	.0388	.0325	.0348	.0363
New York (Bayonne, N. J.):															
No. 1	.0441	.05	.04	.0435	.0446	.0514	.0630	.0450	.0578	.0450	.0588	.0630	.0550	.0574	.0602
No. 4	.0397	.0425	.0375	.0397	.0396	.0439	.0525	.0400	.0478	.04	.0503	.0525	.0450	.0488	.0519
GAS OIL, DIESEL OIL, AND FUEL OIL—															
Oklahoma (Group 3):															
U.G.I. gas oil, under 35	0267	.0288	.0250	.0271	.0262	.0280	.0287	.0262	.0275	.0285	.0289	.0313	.0275	.0280	.0298
Below 14 fuel oil, industrial	.4597	.5250	.40	.4654	.4540	.5509	.70	.50	.5961	.5058	.7780	.80	.70	.7831	.7730
California:															
24 plus diesel, per barrel	.9466	1.15	.80	.97	.9231	1.19	1.50	1.00	1.32	1.05	1.18	1.50	1.00	1.08	1.29
New York (Bayonne, N. J.):															
28-30 diesel (lighterage 6¼ cents bbl.)	1.695	2.10	1.65	1.67	1.72	1.84	2.20	1.75	1.93	1.75	2.08	2.20	1.65	1.95	2.20
Bunker C (New York Harbor)	1.04	1.50	.95	.96	1.12	1.05	1.25	.95	1.14	.95	1.27	1.35	1.15	1.22	1.31
NEUTRAL OILS—															
Oklahoma (Group 3):															
200, 3 color, 15-25 pour point	.11	.14	.10	.10	.12	.10	.10	.10	.10	.10	.0996	.10	.0950	.0992	.10
Pennsylvania:															
200, 3 color, 10 pour point	.2208	.34	.17	.1810	.2606	.1714	.20	.1350	.1784	.1644	.2567	.29	.21	.2663	.2471
Gulf Coast:															
200, 3 pale oil	.0699	.0725	.0650	.07	.0697	.0700	.07	.07	.0700	.0700	.0696	.07	.0650	.0692	.0700
200, 5-6 red oil	.0711	.0725	.0625	.0725	.0697	.0719	.0725	.0725	.0725	.0712	.0714	.0725	.0675	.0702	.0725
California:															
200, 2½-3 pale oil	.0725	.0725	.0725	.0725	.0725	.0719	.0750	.0725	.0725	.0712	.0708	.0725	.0625	.0697	.0718
BRIGHT AND STEAM REFINED STOCKS—															
Oklahoma (Group 3):															
150-160, zero to 10, D color	.1674	.25	.1425	.1425	.1922	.1491	.16	.1425	.1554	.1428	.1859	.20	.16	.1938	.1781
Pennsylvania:															
600 S.R.	.0996	.1750	.08	.0831	.1161	.0815	.0850	.07	.0827	.0803	.1374	.1750	.07	.1617	.1131
Bright stock, 10 pour point	.2079	.35	.15	.1733	.2425	.1671	.1850	.15	.1721	.1621	.2422	.28	.18	.2694	.2150
WAX—															
Oklahoma (Group 3):															
124-126 (crude scale)	.0350	.0675	.0235	.0256	.0444	.0230	.03	.0212	.0234	.0226	.0286	.03	.0263	.0272	.03
New York (Bayonne, N. J.):															
125-127 (A.m.p.)	.0419	.0650	.0360	.0367	.0470	.0431	.0455	.0435	.0441	.0421	.0455	.0455	.0455	.0455	.0455
EXPORT PRICES—															
Gasoline—Gulf Coast:															
U. S. Motor	0449	.05	.0425	.0428	.0469	.0481	.0537	.0437	.0482	.0470	.0576	.0613	.0525	.0563	.0588
70 octane	.0530	.07	.04	.0437	.0622	.0510	.0575	.0450	.0522	.0498	.0606	.0638	.0563	.0597	.0615
Los Angeles, Calif.:															
U. S. Motor, 60-65 octane	.0468	.0550	.0425	.0458	.0477	.0521	.0575	.0500	.0539	.0502	.0503	.06	.0475	.0475	.0531
U. S. Motor, 65-69 octane	.0495	.0575	.0450	.0483	.0507	.0559	.0625	.0525	.0589	.0529	.0531	.0625	.05	.05	.0561
Lubricants—New York (f.a.s. in bbls.):															
600 S.R. unfiltered	.1842	.28	.16	.16	.2084	.1607	.1650	.1550	.1613	.16	.2170	.24	.1650	.2284	.2056
Bright stock, No. 8 color	.2324	.40	.1625	.1625	.3022	.1914	.2350	.1625	.2203	.1625	.2994	.32	.2350	.3082	.2906

PENBERTHY

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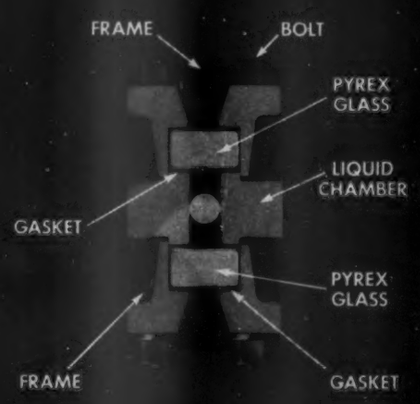

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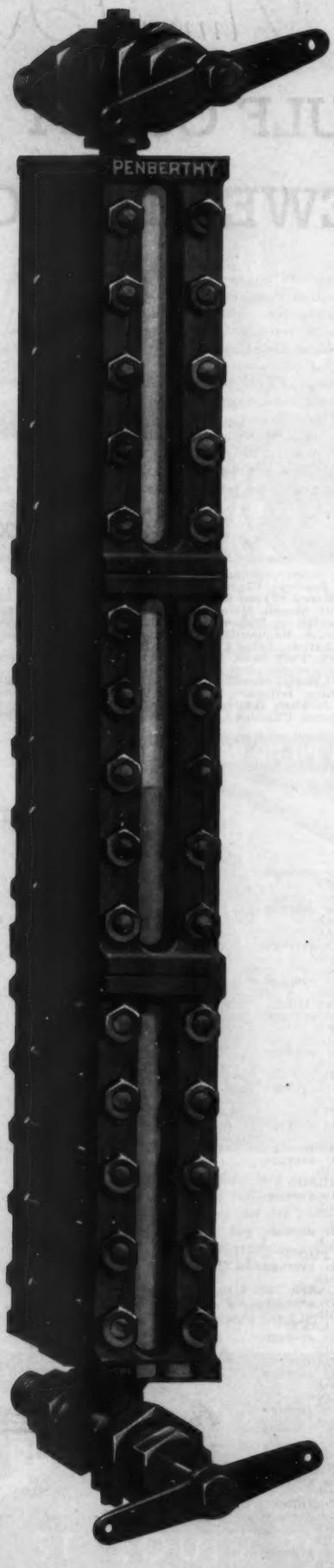


PENBERTHY INJECTOR COMPANY

DETROIT, MICHIGAN

PENBERTHY PRODUCTS

CANADIAN PLANT:
WINDSOR, ONTARIO

Annual Review

GULF COAST DRILLING INCREASES BUT FEWER DISCOVERIES IN 1939

By NEIL WILLIAMS

Although the number of new discoveries opened along the Gulf Coast district during 1939 fell short of the preceding year, drilling operations showed an increase as the result of an extensive drilling campaign in the coastal Louisiana sector, which marked up its busiest year. There were 25 fields opened, 13 of which were in Louisiana and the balance in the Texas sector. New sands and important extensions were recorded in many of the proven fields.

A total of 2,200 wells were drilled, an increase of 264 over 1938. Of the total, 1,365 were completed on the Texas coast and 835 in coastal Louisiana, an increase of 310 in the latter district.

Probably the most outstanding development was the extensions of the Tertiary Wilcox play into coastal Louisiana by the discovery of the Eola field in Avoyelles Parish. The field was opened in January by S. W. Richardson's No. 1 Haas Investment Co., which was completed for a prolific producer in more than 100 ft. of saturated Wilcox sand. The field has been one of the most active areas in the district, with development being carried on by Amerada Petroleum Corp. and numerous independent operators. At the close of the year 42 producers had been completed, the field having a daily average production of 8,597 bbl.

The above discovery led to an extensive wildcatting play throughout the northern tier of parishes as well as deeper drilling in proven fields along the trend. While the wildcatting play at the close of the year had failed to open additional reserves, deeper drilling in the Villa Platte field, Evangeline Parish, opened production from the Wilcox sand on the southwest flank of the structure, and at the end of the year several additional producers had been completed, indicating that the deeper sand overlies the entire structure.

With the exception of Eola, the balance of the new fields are in the early stages of development and additional drilling will have to be done before their po-

TEXAS GULF COAST DISCOVERIES IN 1939

Field, county, company and farm name—	Survey	Date of completion	Producing formation	Producing depth	Initial production	No. prod. wells Jan. 1, 1940
Anchor, Brazoria, Glenn McCarthy's No. 1 Carr	J. D. Valderas	9-30	Frio	10,460-67	267 B.P.D., various chokes	1
Aldine, Harris, Texas Gulf Prod. Co.'s No. 1 Weary	E. Farias	5- 4	Yegua	6,824-34	129 B.P.D., 1/8-in. choke	1
Buttermilk Slough, Matagorda, Sun Oil Co.'s No. 1 Cavallin	J. Duncan	8- 3	Frio	7,850-60	35 B.P.D., 11/64-in. choke	1
Chocolate Bayou, Brazoria, Glen McCarthy's No. 1 Houston F. Dev.	Perry & Austin 7	10-27	Frio	9,864-74	32 B.P.D., 1/8-in. choke	1
Citrus Grove, Matagorda, Continental Oil Co.'s No. 1 Savage	D. Yeamans No. 25	7-13	Heterostegina	4,132-42	Gas well	2
Hilje, Wharton, Texas Co.'s No. 1 Peters	E.T.R.R.	9-14	Frio	5,246-49½	14 B.P.D., 7/64-in. choke	1
Rosenberg, Fort Bend, H. C. Cockburn's No. 1 Dezierzanowski	H.&T.C.	9-26	Yegua	7,726-43	112 B.P.D., 7/32-in. choke	1
Caplen, Galveston, Sun Oil Co.'s No. 1 Cade	Dickson	3-13	Frio	7,474-78	307 B.P.D., 11/64-in. choke	4
Martha, Liberty, Stanolind O. & G. Co.'s No. 1 Flowers	I.&G.N. No. 7	6-30	Yegua	8,104-08	150 bbl. in 15 hours, 5/32-in. choke	4
South China, Jefferson, Hebert & Smith's No. 1 Fontenot	H.T.&B. No. 17	6-27	Frio	7,872-85	102 B.P.D., 9/64-in. choke	3
Texana, Jackson, Moore & Ahern's No. 1 Drushel	Patrick Scoff	8- 7	Fri	5,705-08	10 B.P.D., 1/8-in. choke	1
Cedar Bayou, Chambers, J. R. Turnbull's No. 1 Kirby Pet. Co.	Chambers Sch. Ld.	11- 2	Frio	6,418-31	218 B.P.D., 1/4-in. choke	2

GULF COAST TEXAS

Upper District

Daily Average and Monthly Production in 1939

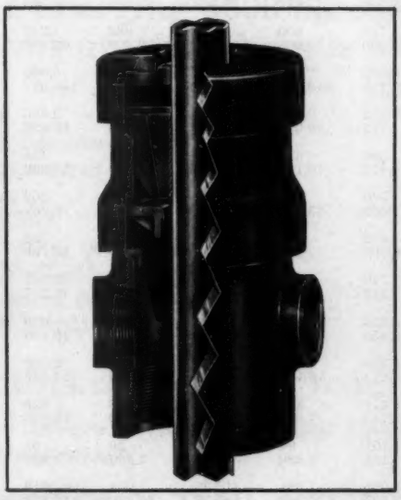
	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
ACE:													
Daily average	67	121	121	158	152	91	280	131	283	221	235	359	
Month	2,077	3,388	3,751	4,740	4,712	2,730	8,680	4,061	8,490	6,851	7,050	11,129	67,659
AMELIA:													
Daily average	3,245	3,124	3,264	2,856	2,641	2,500	2,541	1,325	2,397	2,028	1,903	2,737	
Month	100,595	87,472	101,184	85,680	81,871	75,000	78,771	41,075	71,910	62,868	57,090	84,847	928,363
ANAHUAC:													
Daily average	7,982	7,746	8,148	8,079	7,976	7,061	7,396	3,986	7,086	6,697	5,510	6,292	
Month	247,442	216,888	252,588	242,370	247,256	211,830	229,276	123,566	212,580	207,607	165,300	195,052	2,551,755
ARIOLA:													
Daily average	227	256	235	178	247	237	230	230	217	200	235	282	
Month	7,037	7,168	7,285	5,340	7,657	7,110	7,130	7,130	6,510	6,200	7,050	8,746	84,363
BARBERS HILL:													
Daily average	8,192	8,481	8,461	8,743	8,574	9,045	8,374	8,451	8,883	9,116	9,125	9,120	
Month	253,952	237,468	262,291	262,290	265,794	271,350	259,594	261,981	266,490	282,596	273,750	282,720	3,180,276
BAMMEL:													
Daily average	158	192	155	158	90	128	203	203	393	558	246	252	
Month	4,898	5,376	4,805	4,740	2,790	3,840	6,293	6,293	11,790	17,298	7,380	7,812	83,315
BATSON:													
Daily average	1,854	1,838	1,794	1,805	1,880	1,724	1,793	1,489	1,610	1,589	1,111	1,144	
Month	57,474	51,464	55,614	54,150	58,280	51,720	55,583	46,159	48,300	49,259	33,330	35,464	596,797
BAY CITY:													
Daily average	2,800	2,394	2,494	2,591	2,353	2,635	2,431	2,393	2,554	2,390	3,008	3,009	
Month	86,800	67,032	77,314	77,730	72,943	79,050	75,361	74,183	76,620	74,090	90,240	93,248	944,611
BIG CREEK:													
Daily average	544	568	582	556	559	450	505	332	473	419	374	391	
Month	16,864	15,904	18,042	16,680	17,329	13,500	15,655	10,292	14,190	12,989	11,220	12,121	174,786
BLUE RIDGE:													
Daily average	704	666	765	800	840	750	789	824	817	797	515	620	
Month	21,824	18,648	23,715	24,000	26,040	22,500	24,459	25,544	24,510	24,707	15,450	19,220	270,617
BOLING:													
Daily average	1,664	1,439	1,505	1,582	1,504	1,875	1,528	1,450	1,494	1,424	1,728	1,483	
Month	51,584	40,292	46,655	47,460	46,624	56,250	47,368	44,950	44,820	44,144	51,840	45,973	567,960
CEDAR POINT:													
Daily average	633	631	675	595	663	652	778	410	785	832	739	968	
Month	19,623	17,668	20,925	17,850	20,553	19,560	24,118	12,710	23,550	25,792	22,170	30,008	254,527
CLAM LAKE:													
Daily average	202	200	223	96	91	90	147	77	139	128	114	147	
Month	6,262	5,600	6,913	2,880	2,821	2,700	4,557	2,287	4,170	3,968	3,420	4,557	50,135
CLEAR LAKE:													
Daily average	108	158	257	275	221	202	304	225	512	565	605	922	
Month	3,348	4,424	7,967	8,250	6,851	6,060	9,424	6,975	15,360	17,515	18,150	28,582	132,906
CLEVELAND:													
Daily average	333	356	367	353	331	295	308	205	257	268	223	237	
Month	10,323	9,968	11,377	10,590	10,261	8,850	9,548	6,355	7,710	8,308	6,690	7,347	107,327
CLINTON:													
Daily average	326	316	319	167	205	201	249	124	226	212	177	200	
Month	10,106	8,848	9,889	5,010	6,355	6,030	7,719	3,844	6,780	6,572	5,310	6,200	82,663
CONROE:													
Daily average	27,849	26,118	28,259	27,513	29,642	28,390	27,778	14,541	26,221	24,031	20,573	22,454	
Month	863,319	731,304	876,029	825,390	918,902	851,700	861,118	450,771	786,630	720,930	617,190	696,074	9,199,357
COTTON LAKE, NORTH:													
Daily average	374	350	340	380	344	340	348	227	328	337	318	312	
Month	11,594	9,800	10,540	11,400	10,664	10,200	10,788	7,037	9,840	10,447	9,540	9,672	121,522
DAMON MOUND:													
Daily average	267	272	281	259	279	250	204	251	257	289	329	335	
Month	8,277	7,616	8,711	7,770	8,649	7,500	6,324	7,781	7,710	8,959	9,870	10,385	99,552
DANBURY:													
Daily average	479	554	506	498	433	418	447	428	401	362	468	387	
Month	14,849	15,512	15,686	14,940	13,423	12,540	13,857	13,268	12,030	11,422	14,040	11,997	163,564

(Continued on Next Page)

TUBING HEAD TROUBLES? We've finally got 'em licked . . . and my fingers aren't crossed either. Last week after a tough night at Sterling No. 3, I phoned Jack Brown at the Larkin warehouse, and he sure came through with the right answer.

"COME ON OVER!" says Jack. "I want you to take a look at this new interchangeable Larkin Tubing Head. It's got more features than a Hollywood revue." And when he takes the gland nut off and shows me the insides, I know that our tubing head problems are practically solved.

THIS NEW LARKIN TUBING HEAD IS SURE A HONEY! It is completely interchangeable. The head can be threaded for 5½" OD or 7" OD casing. Inside diameter is same as the pipe so any packer or tool that will run through the pipe will go through the head.



THE STEEL SLIPS . . . 4" long, won't pinch pipe. The stripper is Neoprene. In a test, 30,000 feet of tubing went through the head and the stripper took 4,500 lbs. cold hydro-static pressure after the run. The complete head is only 18" overall height . . . a swell start for a compact hook-up and it's made of a seamless steel pierce-rolled billett, drop-forged in one piece so the head *can't* spring leaks . . .

YOU CAN CHANGE the rubbers and slips to take 2" or 2⅜" tubing . . . and 5½" OD parts are interchangeable with 7" OD. You can get parts from Larkin to make up a high or low pressure slip or mandrel type head; or a flanged-type slip or mandrel-head for high or low pressure work.

• All the details are on page 1380 of the 1940 Composite Catalog. When you need a tubing-head . . . get yourself a LARKIN!

LARKIN

LARKIN PACKER COMPANY ★ ST. LOUIS, MO.

tentiality will be known. Two important strikes are believed to have been opened in St. Charles and St. Martin parishes. The Paradis field, St. Charles Parish, originally opened by the Texas Co. as a distillate field from sand at 9,895-9,915 ft., received a 1½-mile northwest extension, and a new sand discovery by the completion of the company's No. 2 Paradis. The well was drilled to a total depth of 11,170 ft., and production was obtained by perforating casing opposite oil sand at 10,205-10,340 ft. The well flowed at the rate of 17 bbl. of 38.3-gravity oil per hour through a ⅝-in. choke under a tubing pressure of 1,490 lb. Several sands were logged in the well, and the structure has the appearance of being the same type as the La Fitte field, Jefferson Parish, which is one of the most important deep structures in the district.

In St. Martin Parish Shell Oil Co., Inc.'s No. 1 Iberville Land Co., southeast of the Henderson salt dome, flowed 1,013 bbl. per day through a ¼-in. choke to open an important field on the Happytown structure. Production is from the Miocene sand at 9,745-58 ft. The well is situated on a block of several thousand acres which is controlled by the Shell company.

Exploration around the flank of known salt-dome structures continues to be an important phase of development, and several million barrels in new reserves was added to the district by this type of drilling. The Plumb Bob and Vermilion Bay structures in St. Martin and Iberia parishes were added to the list of producing fields, while prolific production was opened at Potash and Venice in Plaquemines Parish. Acreage around these old domes, which was dropped after drilling of shallow tests, has been re-leased and locations for deep tests are proposed.

Increased drilling operations resulting from extensions and new sand discoveries in the Golden Meadow and University fields, La Fourche and East Baton Rouge parishes, accounted largely for increase in the total number of completed wells. Golden Meadow, opened in December 1938, was the district's busiest field, as production was extended into the townsite of Golden Meadow, creating an extensive town-lot drilling campaign. Production is being developed from 10 sands, ranging from 2,600 to 10,000 ft. At the end of the year approximately 25 rigs were running, and a total of 41 wells had been completed, having a daily average production of 6,557 bbl. The University field, another discovery of 1938, was extended north into

GULF COAST TEXAS—Upper District (Continued)

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
DICKINSON:													
Daily average	8,660	8,752	11,399	8,959	8,851	8,355	11,340	9,020	12,113	11,707	11,405	11,363	
Month	268,460	245,056	353,369	268,770	274,381	250,650	351,540	279,620	363,390	362,917	342,150	352,253	3,712,556
ESPERSON:													
Daily average	1,252	1,338	1,318	1,137	1,121	985	1,391	1,200	1,592	1,943	1,572	1,520	
Month	38,812	37,464	40,858	34,110	34,751	29,550	43,121	37,200	47,760	60,233	47,160	47,120	498,139
EUREKA:													
Daily average	1,561	2,478	2,951	2,908	2,940	2,761	2,808	1,901	2,833	3,143	3,885	3,997	
Month	48,391	69,384	91,481	87,240	91,140	82,830	87,048	58,931	84,990	97,433	116,550	123,287	1,038,705
FANNETT:													
Daily average	516	501	510	473	443	375	419	293	278	330	336	351	
Month	15,996	14,028	15,810	14,190	13,733	11,250	12,989	9,083	8,340	10,230	10,080	10,881	146,610
FAIRBANKS:													
Daily average	6,249	6,939	8,143	8,550	8,419	7,767	7,535	4,189	7,716	7,044	5,821	6,669	
Month	193,719	194,292	252,433	256,500	260,989	233,010	233,585	129,859	231,480	218,364	174,630	206,739	2,585,600
FRIENDSWOOD:													
Daily average	5,286	5,500	6,183	6,376	6,340	6,159	6,650	3,604	6,686	6,424	5,517	9,367	
Month	163,866	154,000	191,673	191,280	196,540	184,770	206,150	111,724	200,580	199,144	165,510	290,377	2,255,614
GOOSE CREEK:													
Daily average	1,562	1,593	1,563	2,087	2,008	2,015	2,117	1,656	1,704	1,697	2,246	2,008	
Month	48,422	44,604	48,453	62,610	62,248	60,450	65,627	51,336	51,120	52,607	67,380	62,248	677,105
HANKAMER:													
Daily average	1,152	1,126	1,152	1,058	1,067	951	1,019	865	886	955	726	849	
Month	35,712	31,528	35,712	31,740	33,077	28,530	31,589	26,815	26,580	29,605	21,780	26,319	358,987
HARDIN:													
Daily average	6,197	6,244	5,864	5,763	6,989	7,340	6,380	3,472	6,028	6,873	4,853	5,195	
Month	192,107	174,832	181,784	172,890	216,659	220,200	197,780	107,632	180,840	213,063	145,590	161,045	2,164,422
HASTINGS:													
Daily average	18,206	17,802	18,471	18,100	19,589	19,020	16,523	10,986	19,979	18,514	16,167	20,946	
Month	564,386	498,456	572,601	543,000	607,259	570,600	512,213	340,566	599,370	573,934	485,010	649,326	6,516,721
HIGH ISLAND:													
Daily average	2,529	2,462	2,529	2,587	2,272	1,990	2,463	1,305	2,407	2,350	2,103	2,176	
Month	78,399	68,936	78,399	77,610	70,432	59,700	76,353	40,455	72,210	72,850	63,090	67,456	825,890
HITCHCOCK:													
Daily average	701	665	729	900	797	982	1,247	785	1,029	1,052	1,116	966	
Month	21,731	18,620	22,599	27,000	24,707	29,460	38,657	24,335	30,870	32,612	33,480	29,946	334,017
HULL:													
Daily average	6,996	6,294	6,509	7,033	6,504	6,144	5,367	5,411	5,203	5,220	6,783	6,797	
Month	216,876	176,232	201,779	210,990	201,624	184,320	166,377	167,741	156,090	161,820	203,490	210,707	2,258,046
HUMBLE:													
Daily average	3,301	3,275	3,152	2,969	3,310	2,901	2,885	2,587	2,786	2,645	2,073	2,446	
Month	102,331	91,700	97,712	89,070	102,610	87,030	89,435	80,197	83,580	81,995	62,190	75,826	1,043,676
KITTRELL:													
Daily average	549	535	596	637	639	480	416	265	407	415	346	391	
Month	17,019	14,980	18,476	19,110	19,809	14,400	12,896	8,215	12,210	12,865	10,380	12,121	172,481
LABELLE:													
Daily average	674	694	570	522	596	570	202	207	199	180	430	367	
Month	20,894	19,432	17,670	15,660	18,476	17,100	6,262	6,417	5,970	5,580	12,900	11,377	157,738
LIBERTY:													
Daily average	391	458	432	409	408	410	328	294	351	402	289	375	
Month	12,121	12,824	13,392	12,270	12,648	12,300	10,168	9,114	10,530	12,462	8,670	11,625	138,122
LIVINGSTON:													
Daily average	1,769	1,659	1,749	1,695	1,975	1,792	1,507	884	1,330	1,391	1,109	1,420	
Month	54,839	46,452	54,219	50,850	61,225	53,760	46,717	27,404	39,900	43,121	33,270	44,020	555,777
LEAGUE CITY:													
Daily average	225	247	434	665	481	371	649	459	1,351	2,213	2,495	2,734	
Month	6,975	6,916	13,454	19,950	14,911	11,130	20,119	14,229	40,530	68,603	74,850	84,754	376,421
LOCKRIDGE:													
Daily average	1,731	1,765	1,854	2,537	2,153	2,445	2,395	2,351	2,370	2,543	2,582	2,595	
Month	53,661	49,420	57,474	76,110	66,743	73,350	74,245	72,881	71,100	78,833	77,460	80,445	831,722
LOVELLS LAKE:													
Daily average	286	347	411	261	464	560	628	404	830	1,001	1,176	1,437	
Month	8,866	9,716	12,741	7,830	14,384	16,800	19,468	12,524	24,900	31,031	35,280	45,547	239,087
LOST LAKE:													
Daily average	98	593	101	94	107	96	91	94	97	87	64	72	
Month	3,038	16,604	3,131	2,820	3,317	2,880	2,821	2,914	2,910	2,697	1,920	2,232	47,284
LOUISE:													
Daily average	2,199	1,170	1,275	1,331	1,125	1,014	1,319	1,129	1,356	1,059	1,029	1,178	
Month	68,169	32,760	39,525	39,930	34,875	30,420	40,889	34,999	40,680	32,829	30,870	36,518	462,464
MAGNET:													
Daily average	860	909	1,058	875	861	822	1,092	799	1,015	1,034	820	1,015	
Month	26,660	27,972	32,798	26,250	26,691	24,660	33,852	24,769	30,450	32,054	24,600	31,465	342,221
MANVEL:													
Daily average	7,839	7,648	7,855	8,699	8,641	8,220	7,137	4,910	4,912	7,593	7,090	7,733	
Month	243,009	214,144	243,505	260,970	267,871	246,600	221,247	152,210	147,360	235,383	212,700	239,723	2,684,722
MARKHAM:													
Daily average	1,772	1,710	1,860	1,775	1,618	1,445	1,659	1,661	1,865	1,354	1,097	1,250	
Month	54,932	47,880	57,660	53,250	50,158	43,350	51,429	51,491	55,950	41,974	32,910	38,750	579,734
McCROSKY:													
Daily average	210	201	200	166	141	221	106	71	82	74	178	205	
Month	6,510	5,628	6,200	4,980	4,371	6,630	3,286	2,201	2,460	2,294	5,340	6,355	56,255
MAURITZ:													
Daily average	131	127	131	113	102	112	107	60	104	155	151	154	
Month	4,061	3,556	4,061	3,390	3,162	3,360	3,317	1,860	3,120	4,805	4,530	4,774	43,996
MYKAWA:													
Daily average	1,189	1,198	1,070	1,001	851	857	1,097	1,603	938	1,048	1,128	1,127	
Month	36,859	33,544	33,170	30,030	26,381	25,710	34,007	49,693	28,140	32,488	33,840	34,937	398,799
NOME:													
Daily average	1,320	1,327	1,325	1,237	1,211	1,090	1,077	574	935	893	837	940	
Month	40,920	37,156	41,075	37,110	37,541	32,700	33,387	17,794	28,050	27,683	25,110	29,140	387,666
NORTH MARKHAM:													
Daily average	108	100	98	54	82	81	75	80	82	79	61	100	
Month	3,348	2,800	3,038	1,620	2,542	2,430	2,325	2,480	2,460	2,449	1,830	3,100	30,422
OLD OCEAN:													
Daily average	7,056	7,516	7,795	8,023	6,530	6,829	9,536	10,041	10,067	10,495	10,520	11,116	
Month	218,736	210,448	241,645	240,690	202,430	204,870	295,616	311,271	302,010	325,345	315,600	344,596	3,213,257
ORANGE:													
Daily average	2,003	2,250	2,528	2,811	3,272	3,052	2,661	1,813	2,656	2,500	1,900	2,222	
Month	62,093	63,000	78,368	84,330	101,432	91,560	82,491	56,203	79,680	77,500	57,000	68,882	902,539
ORCHARD:													
Daily average	503	492	482	491	398	272	476	393	424	478	186	210	
Month	15,593	13,776	14,922	14,730	12,338	8,160	14,756	12,183	12,720	14,818	5,580	6,510	145,486

(Continued on Next Page)

A winning story

Up against it in 1934, a certain Mid-Continent refiner put in a Dubbscracking unit, charging 1200 barrels a day of crude oil It solved the problem, and in 1935 he said:

> "Based on a 60 percent yield this cracking operation gives the company 25 to 50 cents per barrel increased return on finished products"

So in 1937 he went to Dubbs 2-coil operation —increasing daily charging capacity to 3400 barrels And still he needed more gasoline

In 1938, he installed the U.O.P. catalytic poly process to make more anti-knock gasoline from cracked gas

Today he is charging 3600 barrels of crude a day to his Dubbs unit and here is what he gets:

	Percent
Gasoline	65.17
Polymer gasoline	2.20
500 endpoint gas oil	.35
Residuum	25.79
Gas and loss	6.49
Octane rating of gasoline (L 3 Method)	71.2
Octane rating of polymer gasoline (L 3 Method)	84

No wonder this refiner says today:

> "I do not believe anyone has a plant operating to better advantage"

Universal service as well as Universal processes has helped him all the way along

They will help you, too

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

the State University campus, resulting in a large-scale drilling campaign which was carried on consistently by independent operators. Approximately 54 producers were completed during the year, making a total of 60 wells, having a daily average production of 9,025 bbl.

Of the 12 fields opened on the Texas coast, seven were oil fields and the balance gas or distillate pools. While most of the fields are in the early stages of development, the Anchor field, Brazoria County, and the Caplen field, Galveston County, loom as the most important discoveries.

Production from a deep-seated salt-dome type of structure was opened southeast of the town of Anchor by Glenn H. McCarthy's No. 1 J. C. Carr. The well was drilled to a total depth of 10,538 ft., and was completed for a large distillate producer from sand at 10,460-67 ft. Several possible oil and gas sands were logged above the present producing depth. The field is believed to be the same type of structure as Old Ocean, several miles to the southwest, which is producing from a series of sands at intervals from 8,900-10,400 ft. Humble Oil & Refining Co.'s No. 1 Mettler, 1½ miles northeast of the discovery well, was later completed in the same sand as a crude-oil producer.

Brazoria County was the scene of considerable wildcatting and several interesting tests were marked off the list as dry holes. Another strike for the county was opened by Glenn H. McCarthy's No. 1 Houston Farm Development Co., completed as a distillate producer opposite sand at 9,864-74 ft. This well was also drilled below 10,000 ft., and several sand and shale sections showing oil and gas are reported to have been logged by an electrical survey. Although the same operator has two other operations under way in the field, the depth from which production is obtained is expected to curtail any large-scale drilling campaign.

On Bolivar Peninsula, near the Gulf of Mexico, in Galveston County, Sun Oil Co. opened the Caplen field with the completion of No. 2 Cade for an initial production of 307 bbl. of 34-gravity oil per day, flowing through a 11/64-in. choke. Production is from the Frio sand through perforated casing at 7,474-78 ft. The company is carrying on a moderate development campaign, and at the close of the year three additional producers had been completed on the structure.

The producing area of the Aldine field, Harris County, was confined to a small area by several dry holes. The field was opened by Texas Gulf Producing Co.'s No. 1 Weary, completed in the Eponides Yeguaensis at 6,824-34 ft. Dry holes have been drilled to the southwest, north, and southeast.

Two pools were opened in Jefferson and Liberty counties. Approximately 2 miles southwest of the North Cheek field, Jefferson County, Hebert, Smith, and others' No. 1 L. D. Fontenot was completed in the upper Frio sand at 7,875-85 ft., and the well flowed

(Continued on Page 139)

GULF COAST TEXAS—Upper District (Continued)

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
PICKETT RIDGE:													
Daily average	16,20	1,570	1,739	1,646	1,537	1,365	1,674	1,192	1,657	1,586	1,403	1,886	
Month	50,220	43,960	53,909	49,380	47,647	40,950	51,894	36,952	49,710	49,166	42,090	58,466	574,344
PIERCE JUNCTION:													
Daily average	2,620	2,791	2,537	2,491	2,845	2,305	2,581	2,707	2,623	2,541	2,057	2,433	
Month	81,220	78,148	78,647	74,730	88,195	69,150	80,011	83,917	78,690	78,771	61,710	75,423	928,612
PORT NECHES:													
Daily average	903	882	918	923	925	865	911	857	937	873	791	867	
Month	27,993	24,696	28,458	27,690	28,675	25,950	28,241	26,567	28,110	27,063	23,730	26,877	324,050
RACCOON BEND:													
Daily average	3,009	2,895	2,999	3,368	3,212	2,891	3,004	1,568	2,773	2,572	2,601	2,987	
Month	93,279	81,060	92,969	101,040	99,572	86,730	93,124	48,608	83,190	79,732	78,030	92,597	1,029,931
SANDY POINT:													
Daily average	230	200	195	130	155	145	206	47	52	65	42	57	
Month	7,130	5,600	6,045	3,900	4,805	4,350	6,386	1,457	1,560	2,015	1,260	1,767	46,275
SARATOGA:													
Daily average	1,007	1,081	1,070	1,032	1,140	1,092	901	597	818	842	670	761	
Month	31,217	30,268	33,170	30,960	35,340	32,760	27,931	18,507	24,540	26,102	20,100	23,591	334,486
SATSUMA:													
Daily average	300	294	332	355	351	313	317	242	209	274	229	253	
Month	9,300	8,232	10,292	10,650	10,881	9,390	9,827	7,502	6,270	8,494	6,870	7,843	105,551
SEABREEZE:													
Daily average	286	324	279	298	286	227	314	169	310	290	320	225	
Month	8,866	9,072	8,649	8,940	8,866	6,810	9,734	5,239	9,300	8,990	9,600	6,975	101,041
SEGNO:													
Daily average	2,739	2,731	3,019	2,921	2,391	2,189	2,531	1,415	2,693	2,624	2,137	2,495	
Month	84,901	76,468	93,589	87,630	74,121	65,670	78,461	43,865	80,790	81,344	64,110	77,345	908,294
SILSBEE:													
Daily average	1,529	1,532	1,601	1,556	1,157	1,108	1,493	1,279	1,385	1,334	1,174	1,361	
Month	47,399	42,896	49,631	46,680	35,867	33,240	46,283	39,649	41,550	41,354	35,220	42,191	501,960
SOUR LAKE:													
Daily average	1,221	1,201	1,177	1,212	1,222	1,220	1,144	716	1,145	1,051	809	880	
Month	37,851	33,628	36,487	36,360	37,882	36,600	35,464	22,196	34,350	32,581	24,270	27,080	394,749
SOUTH HOUSTON:													
Daily average	2,811	2,691	2,778	3,101	3,053	3,059	2,803	1,492	2,597	2,405	1,976	2,277	
Month	87,141	75,348	86,118	93,030	96,643	91,770	86,893	46,252	77,910	74,555	59,280	70,587	945,527
SPINDLETOP:													
Daily average	2,357	2,249	2,302	1,974	1,921	1,620	2,196	1,975	2,031	1,514	1,417	1,972	
Month	73,067	62,972	71,362	59,220	59,551	48,600	68,076	61,225	60,930	46,934	42,510	61,132	715,579
SPURGER:													
Daily average	1,033	1,057	1,167	1,069	1,140	1,047	1,205	685	1,196	1,189	1,012	1,566	
Month	32,023	29,596	36,177	32,070	35,340	31,410	37,355	21,235	35,880	36,859	30,360	48,546	406,851
SUGARLAND:													
Daily average	3,408	3,281	3,408	3,200	3,229	3,282	3,408	1,778	3,216	2,964	2,461	5,588	
Month	105,648	91,868	105,648	96,000	100,099	98,460	105,648	55,118	96,480	90,884	73,830	173,228	1,192,911
THOMPSON:													
Daily average	11,375	10,976	11,576	11,608	10,320	9,315	15,417	7,907	15,894	14,712	12,267	14,378	
Month	352,625	307,328	358,856	348,240	319,920	279,450	477,927	245,117	476,820	456,072	368,010	445,718	4,436,083
TOMBALL:													
Daily average	7,115	7,111	7,087	8,172	7,853	7,176	7,489	4,095	7,142	6,679	5,585	6,265	
Month	220,565	199,108	219,697	245,160	243,443	215,280	232,159	126,945	214,260	207,049	167,550	194,215	2,485,431
TURTLE BAY:													
Daily average	1,063	1,025	1,066	964	1,121	1,024	1,094	778	1,041	976	661	951	
Month	32,953	28,700	33,046	28,920	34,751	30,720	33,914	24,118	31,230	30,256	19,830	29,481	357,919
VAN VLECK:													
Daily average	2,080	2,002	2,108	2,035	1,885	1,617	2,624	1,783	2,210	2,401	1,998	2,261	
Month	64,480	56,056	65,348	61,050	58,435	48,510	81,344	55,273	66,300	74,431	59,940	70,091	761,258
WEST COLUMBIA:													
Daily average	4,662	4,596	4,839	5,262	5,114	4,849	10,676	6,941	6,730	6,963	6,891	7,067	
Month	144,522	128,688	150,009	157,860	158,534	145,470	330,956	215,171	201,900	215,853	206,730	219,079	2,274,772
WEST RANCH:													
Daily average	340	375	424	178	182	157	428	461	1,148	1,251	1,036	1,517	
Month	10,540	10,500	13,144	5,340	5,642	4,710	13,268	14,291	34,440	38,781	31,080	47,027	228,763
WITHERS:													
Daily average	3,462	3,565	3,800	3,899	3,517	3,247	3,942	2,408	3,996	3,828	3,185	3,786	
Month	107,322	99,820	117,800	116,970	109,027	97,410	122,202	74,648	119,880	118,668	95,550	117,366	1,296,663
WILLOW SLOUGH:													
Daily average	339	328	369	425	375	370	384	192	385	388	320	332	
Month	10,509	9,184	11,439	12,750	11,625	11,100	11,904	5,952	11,550	12,028	9,600	10,292	127,933
CLAY CREEK:													
Daily average	491	519	499	540	581	553	483	253	477	436	346	402	
Month	15,221	14,532	15,469	16,200	18,011	16,590	14,973	7,843	14,310	13,516	10,380	12,462	169,507
SOUTH COTTON LAKE:													
Daily average	1,401	1,427	1,423	1,438	1,396	1,508	1,329	778	1,303	1,261	1,320	1,521	
Month	43,431	39,956	44,113	43,140	43,276	45,240	41,179	24,118	39,090	39,091	39,600	47,151	489,385
CORDELLE:													
Daily average	1,030	1,172	1,243	1,587	1,316	1,142	2,283	1,315	2,626	3,718	2,327	2,733	
Month	31,930	32,816	38,533	47,610	40,796	34,260	70,773	40,765	78,780	84,258	69,810	84,723	655,054
FRANCITAS:													
Daily average	121	73	183	242	163	224	190	106	146	205	163	235	
Month	3,751	2,044	5,673	7,260	5,053	6,720	5,890	3,286	4,380	6,355	4,890	7,285	62,587
WEST BEAUMONT:													
Daily average	1,929	1,734	1,783	1,817	2,238	1,965	3,675	3,787	3,644	3,161	3,182	3,343	
Month	59,799	48,552	55,273	54,510	69,378	58,950	113,925	117,397	109,320	97,991	95,460	103,633	984,188
KATY:													
Daily average	145	139	171	216	169	165	128	279	272	247	265	260	
Month	4,495	3,892	5,301	6,480	5,239	4,950	3,968	8,649	8,160	7,657	7,950	8,060	74,801
MISCELLANEOUS POOLS:													
Daily average	614	446	547	502	668	609	706	530	856	1,050	1,160	1,287	750
Month	19,034	12,489	16,957	15,060	20,708	18,270	21,886	16,430	25,680	32,550	34,800	39,896	273,760
Daily average	214,329	212,052	223,667	224,099	222,857	212,467	232,870	160,997	229,456	221,727	205,432	234,893	216,530
Total 1939	6,644,191	5,937,457	6,933,675	6,722,970	6,908,552	6,374,010	7,218,981	4,990,900	6,883,680	6,873,543	6,162,960	7,281,682	79,032,601
Total 1938	5,983,372	5,137,236	6,102,730	6,150,440	6,083,053	5,519,250	6,578,938	6,896,124	6,079,612	6,494,009	6,267,540	6,550,369	73,842,673
Total 1937	5,464,308	5,285,312	6,395,286	5,977,310	6,437,931	6,165,946	6,238,385	7,069,034	6,418,129	6,341,415	5,744,010	6,033,455	73,570,507
Total 1936	4,909,001	4,756,377	5,268,512	5,385,780	5,620,269	5,435,990	5,515,768	5,599,983	5,158,173	5,488,984	4,783,181	5,137,086	63,059,104

Miscellaneous fields and their production in 1939, in bbl., were: Allen 1,241, Brenham 10,006, Buckeye 38,775, Brookshire 1,372, Dibell 5,150, Edna 1,065, Ganado 10,292, Garwood 5,436, Green's Lake 4,873, Huntington 2,430, North Dayton 27,439, North Cheek 5,581, Palacios 24,918, Caplan, 40,284, Wilson Creek 17,855, Rosenberg 7,998. Aldine 9,643, Texana 1,167, South China 15,182, Martha 24,365, Buttermilk Slough 2,851, Anchor 12,726, Chocolate Bayou 1,741, Hilje 1,370; total 273,760.

GULF COAST TEXAS—Lower District

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Tl. 1939 (bbl.)
AGUA DULCE:													
Daily average	582	580	449	383	447	267	444	356	370	499	270	341	
Month	18,042	16,240	13,919	11,490	13,857	8,010	13,764	11,036	11,100	15,469	8,100	10,571	151,598
BALDWIN:													
Daily average	318	339	307	352	319	287	357	169	370	312	279	280	
Month	9,858	9,492	9,517	10,560	9,889	8,610	11,067	5,239	11,100	9,672	8,370	8,680	112,054
BENTONVILLE:													
Daily average	733	738	744	720	841	650	737	656	1,003	1,146	874	1,062	
Month	22,723	20,664	23,064	21,600	26,071	19,500	22,847	20,336	30,090	35,526	26,220	32,922	301,563
CAESAR:													
Daily average	204	211	179	186	192	176	155	156	142	141	127	154	
Month	6,324	5,908	5,549	5,580	5,952	5,280	4,805	4,836	4,260	4,371	3,810	4,774	61,449
CLARA DRISCOLL:													
Daily average	1,643	2,012	2,437	2,303	2,480	2,163	2,437	1,199	2,064	1,787	1,649	1,645	
Month	50,933	56,336	75,547	69,090	76,880	64,890	75,547	37,161	61,920	53,847	49,470	50,995	722,616
COLETO CREEK:													
Daily average	459	390	484	277	359	328	335	250	285	266	239	260	
Month	14,229	11,920	15,004	8,310	11,129	9,840	10,385	7,750	8,550	8,246	7,170	8,060	120,593
DIRKS:													
Daily average	2,074	1,946	1,958	1,923	1,819	1,653	1,674	920	1,546	1,475	1,203	1,340	
Month	64,294	54,488	60,698	57,690	56,389	49,590	51,894	28,520	46,380	45,725	36,090	41,540	593,298
EAST PLACEDO:													
Daily average	581	583	341	386	506	462	361	155	330	288	248	311	
Month	18,011	16,324	10,571	11,580	15,686	13,860	11,191	4,805	9,900	8,928	7,440	9,641	137,937
EAST PREMONT:													
Daily average	214	168	168	111	165	157	135	84	150	130	135	136	
Month	6,634	4,704	5,208	3,330	5,115	4,710	4,185	2,604	4,500	4,030	4,050	4,216	53,286
EAST WHITE POINT:													
Daily average	2,204	2,484	3,546	4,520	5,215	5,374	6,255	3,665	7,192	7,785	6,832	9,073	
Month	68,324	59,552	109,926	135,600	161,665	161,220	193,905	113,615	215,760	241,335	204,960	281,263	1,947,125
FLOUR BLUFF-BIRD ISLAND:													
Daily average	4,411	4,296	4,455	4,273	4,320	3,620	3,862	1,994	3,597	3,277	2,823	2,759	
Month	136,741	120,288	138,105	128,190	133,920	108,600	119,722	61,814	107,910	101,587	84,690	85,529	1,327,096
GRETA:													
Daily average	6,458	6,354	6,440	6,198	5,830	5,301	5,498	2,914	5,273	4,845	3,403	4,372	
Month	200,198	177,912	189,640	185,940	180,730	159,030	170,438	90,334	158,190	150,195	102,090	135,532	1,900,229
HEYSER:													
Daily average	9,377	8,597	10,171	10,628	8,652	2,875	9,845	5,244	9,413	9,603	8,124	10,022	
Month	290,687	240,716	315,301	318,840	268,212	236,250	305,195	162,564	282,390	297,693	243,720	310,682	3,272,250
KEERAN:													
Daily average	595	619	720	714	704	663	688	433	666	743	598	843	
Month	18,445	17,332	22,320	21,420	21,824	19,890	21,328	13,423	19,980	23,133	17,940	26,133	243,168
LA BLANCA:													
Daily average	401	331	149	101	261	261	294	327	390	518	263	320	
Month	12,431	9,268	4,619	3,030	8,091	7,830	9,114	10,137	11,700	16,058	7,890	9,900	110,068
LA ROSA:													
Daily average	684	426	2,363	2,201	1,981	2,240	3,287	1,742	2,460	4,303	2,852	4,155	
Month	21,204	11,928	73,253	66,030	61,411	67,200	101,897	54,002	73,800	133,393	85,560	128,805	878,483
LUBY:													
Daily average	6,524	6,744	7,219	7,412	7,503	6,247	7,319	3,973	7,091	6,616	5,920	6,047	
Month	202,244	188,832	223,789	222,360	232,593	87,410	226,389	123,163	212,730	205,096	177,600	187,457	2,389,663
McCAMPBELL:													
Daily average	5,644	6,034	8,744	9,039	8,698	8,565	6,230	4,948	10,426	9,071	7,579	6,980	
Month	174,964	168,952	271,064	271,170	269,638	256,950	193,130	153,388	312,780	281,201	227,370	216,380	2,796,987
McFADDIN:													
Daily average	1,699	1,796	2,489	2,295	2,077	2,112	2,229	1,177	2,256	2,135	1,795	2,096	
Month	52,669	50,288	77,159	68,850	64,387	63,360	69,099	36,487	67,680	66,185	53,850	64,976	734,990
MELON CREEK:													
Daily average	.....	.....	.....	.....	386	430	524	329	478	424	260	358	
Month	.....	.....	.....	.....	11,966	12,900	16,244	10,199	14,340	13,144	7,800	11,098	97,691
MIDWAY:													
Daily average	705	671	716	580	577	459	909	477	613	823	656	726	
Month	21,855	18,788	22,196	17,400	17,887	13,770	28,179	14,787	18,390	25,513	19,680	22,506	240,951
NORTH AGUA DULCE:													
Daily average	57	63	124	480	85	67	128	161	113	113	114	114	
Month	1,767	1,764	3,844	14,400	2,635	2,010	3,968	4,991	3,390	3,503	3,480	3,534	49,286
NORTH PETTUS:													
Daily average	1,147	1,126	1,053	1,062	1,039	946	966	427	968	837	535	665	
Month	35,557	31,528	32,643	31,860	32,209	28,380	29,946	13,237	29,040	25,947	16,050	20,615	327,012
O'CONNOR:													
Daily average	182	180	175	100	98	88	89	54	88	80	77	74	
Month	5,642	5,040	5,425	3,000	3,038	2,640	2,759	1,674	2,640	2,480	2,310	2,294	38,942
OAKVILLE:													
Daily average	171	196	164	202	187	150	212	263	330	291	273	476	
Month	5,301	5,488	5,084	6,060	5,787	4,500	6,572	8,153	9,900	9,021	8,190	14,756	88,812
PETTUS:													
Daily average	522	521	528	550	840	582	506	182	539	391	428	414	
Month	16,182	14,588	16,368	16,500	26,040	17,460	15,686	5,642	16,170	12,121	12,840	12,834	182,431
PLACEDO:													
Daily average	6,842	7,110	6,907	6,439	6,210	5,649	5,954	3,653	5,659	5,628	4,556	6,039	
Month	212,102	199,080	214,117	193,170	192,510	169,470	184,574	113,243	169,770	174,468	136,680	187,209	2,146,393
PLUMMER:													
Daily average	227	227	192	225	241	218	211	143	158	172	477	254	
Month	7,037	6,356	5,952	6,750	7,471	6,540	6,541	4,433	4,740	5,332	14,310	7,874	83,336
PLYMOUTH:													
Daily average	12,891	13,295	13,371	12,062	12,577	10,657	12,238	7,403	11,501	11,237	9,285	11,469	
Month	399,621	372,260	414,501	361,860	389,887	319,710	379,378	229,493	345,030	348,347	278,550	355,739	4,194,376
PREMONT:													
Daily average	216	333	393	400	325	238	343	219	415	307	340	298	
Month	6,696	9,324	12,183	12,000	10,075	7,140	10,633	6,789	12,450	9,517	10,200	9,238	116,245
RAY:													
Daily average	292	254	250	241	263	239	173	81	194	156	142	165	
Month	9,052	7,112	7,750	7,230	8,153	7,170	5,363	2,511	5,820	4,836	4,260	5,115	74,372
REFUGIO:													
Daily average	5,395	5,959	6,179	5,749	5,138	4,650	5,643	4,016	5,094	4,913	3,756	5,436	
Month	167,245	166,852	191,549	172,470	159,278	139,500	174,933	124,496	152,820	152,303	112,680	168,516	1,882,642
SAXET:													
Daily average	28,118	29,360	28,792	28,707	26,408	24,116	23,166	16,287	21,435	20,370	17,350	17,801	
Month	871,650	822,080	892,552	861,210	818,648	723,480	718,146	504,897	643,050	631,470	520,500	551,831	8,559,514
SAXET HEIGHTS:													
Daily average	1,887	1,694	1,660	1,364	1,469	1,077	1,241	966	1,199	1,085	923	911	
Month	58,497	47,432	51,460	40,920	45,539	32,310	38,471	29,946	35,970	33,635	27,690	28,241	470,111
SOUTH ALFRED:													
Daily average	.....	.....	.....	.....	70	59	293	175	313	156	235	107	
Month	.....	.....	.....	.....	2,170	1,770	9,083	5,425	9,390	4,832	7,050	3,317	43,037
SOUTH ALICE:													
Daily average	3,020	3,229	4,189	4,302	3,516	4,082	3,937	2,286	3,828	3,522	3,071	2,746	
Month	93,620	90,412	129,859	129,060	108,996	122,460	122,047	70,866	114,840	109,182	92,130	85,126	1,268,598
SOUTH BURNELL:													
Daily average	842	839	823	666	627	571	593	308	576	552	451	651	
Month	26,102	23,492	25,513	19,980	19,437	17,130	18,388	9,548	17,280	17,112	13,530	20,181	227,693
SOUTH CLARA DRISCOLL:													
Daily average	642	812	751	735	740	592	738	315	864	814	615	601	
Month	19,902	22,736	23,281	22,050	22,940	17,760	22,878	9,765	25,920	25,234	18,450	18,631	249,547
STRATTON:													
Daily average	326	.....	1,200	1,038	340	283	989	485	1,089	1,110	256	199	
Month	10,106	.....	37,200	31,140	10,540	8,490	30,659	27,035	32,670	34,410	7,680	6,169	236,099
TAFT:													
Daily average	2,187	2,245	2,257	2,130	2,152	1,842	2,155	2,357	4,450	4,425	3,288	3,320	
Month	67,797	62,860	69,967	63,900	66,712	55,260	66,805	73,068	133,500	137,175	98,640	102,920	998,604
TOMOCONNOR:													
Daily average	13,507	13,641	13,854	13,092	12,429	11,392	12,032	6,383	11,493	10,594	9,314	12,481	
Month	418,717	381,948	429,474	392,760	385,299	341,760	372,992	197,873	344,790	328,414	279,420	386,911	4,260,358
TULETA:													
Daily average	274	309	218	210	232	221	202	125	191	199	224	155	
Month	8,494	8,652	6,758	6,300	7,192	6,630	6,262	3,875	5,730	6,169	6,720	4,805	77,587

(Continued on Page 139)

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Annual Review

MISSISSIPPI AND ARKANSAS FIND NEW SOURCES OF OIL PRODUCTION

By GEORGE WEBER

THE importance of oil-field discoveries in the Arkansas-North Louisiana district was subordinated during 1939 to the development and extension of proven reserves. Success in wildcatting through the area, together with volume of exploration, showed a marked increase during the latter part of the year, pointing to greater activity of that nature during 1940.

South Arkansas gained two new Smackover-lime fields and one lower Glen Rose pool.

Mississippi's First Oil Field

The most spectacular discovery of the year, and the most important from the standpoint of subsequent leasing and wildcatting, was the finding of the first oil field in Mississippi. In itself an average oil field, Tinsley served to touch off one of the greatest of modern leasing, geophysical exploration, and wildcatting campaigns. At this time it is indicated that activity in Mississippi and Alabama during 1940 may lead in interest and importance that of any other section of this district. The outcome of a number of current and proposed wildcats in North Louisiana and Arkansas may, however, prove otherwise.

Arkansas

The Magnolia field, Arkansas' greatest oil reserve saw extension during 1939 which served to define it and reveal a major discovery. Following original discovery in 1938, dry holes drilled in the vicinity of the discovery well disappointed operators, but late in the year a steep dip to the south, attending a major thickening of the producing lime revived interest, so that throughout 1939 the field held the center of attention in the state.

At present its extent is estimated at about 4,000 acres. Of the expected 100 wells to be drilled in the field, 80 were completed by the end of the year. The cumulative extensions in the field for 1939 represent an addition of 4,700 acres of proven reserves.

Two Smackover-lime fields, Big Creek and Dorcheat, both in Columbia County, were brought in during the year. Following a succession of failures in wildcatting to this formation, the two fields have revived interest in the possibilities of further reserves from the same horizon.

Dorcheat, discovered by the Atlantic Refining Co.'s No. 1 Pine Woods Lumber Co., is becoming the most active drilling field, and offset and outpost extensions in all directions at the end of the year have focused attention on this field.

Big Creek, discovered late in the year, is still of unknown value. The discovery well, Standard Oil Co. of Louisiana's No. 1 Petty Stave Lumber Co. was completed as a high-pressure gas-condensate well, and it has been shut in until some ruling by the Arkansas Oil & Gas Commission is made regarding disposition of the gas.

Buckner and Village are undergoing orderly development. Buckner was extended on the east in August by a 1¼-mile outpost, Standard Oil Co.'s No. 1 Johnson,

NORTH LOUISIANA

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Tl. 1939 (bbl.)
BELLEVUE:													
Daily average	675	667	692	719	675	601	505	470	466	479	481	475	
Month	20,925	18,676	21,452	21,570	20,925	18,030	15,655	14,570	13,980	14,849	14,430	14,725	209,787
CADDO (Light):													
Daily average	4,064	4,127	4,124	4,269	2,626	4,412	4,587	4,522	4,612	4,730	5,212	5,233	
Month	125,984	115,556	127,844	128,070	143,406	132,360	142,197	140,182	138,360	146,630	156,360	162,223	1,659,172
CADDO (Heavy):													
Daily average	2,646	2,589	2,504	2,481	2,429	2,375	2,473	2,562	2,529	2,487	2,488	2,465	
Month	82,026	72,492	77,624	74,430	75,299	71,250	76,663	79,422	75,870	77,097	74,640	76,415	913,228
CONVERSE:													
Daily average	512	498	455	532	541	534	550	496	537	585	504	516	
Month	15,872	13,944	14,105	15,960	16,771	16,020	17,050	15,376	16,110	18,135	15,120	15,996	190,459
COTTON VALLEY (Heavy):													
Daily average	75	101	92	95	65	68	15	14	6	5	5	6	
Month	2,325	2,828	2,852	2,850	2,015	2,040	465	434	180	155	150	186	16,480
COTTON VALLEY (Light):													
Daily average	5,167	4,943	5,043	5,288	3,776	4,778	3,306	2,235	3,571	3,584	3,473	3,447	
Month	160,177	138,404	156,333	158,640	117,056	143,340	102,486	69,285	107,130	111,104	104,190	106,857	1,475,002
COTTON VALLEY (Distillate):													
Daily average	4,680	4,507	4,958	4,656	3,885	4,394	3,152	2,488	3,218	3,118	3,027	3,103	
Month	145,080	126,196	153,698	139,680	120,435	131,820	97,712	77,128	96,540	96,658	90,810	96,193	1,371,950
COTTON VALLEY (Lower Marine):													
Daily average	1,816	2,334	2,972	3,383	3,739	3,810	4,510	2,770	3,859	5,756	6,695	6,300	
Month	56,296	65,352	92,132	101,490	115,909	114,300	139,810	85,870	115,770	178,436	200,850	195,300	1,461,515
CROSS LAKE (SHREVEPORT):													
Daily average	2,572	3,269	4,261	6,212	7,070	7,602	7,133	3,530	3,917	4,159	6,094	5,756	
Month	79,732	91,532	132,091	186,360	219,170	228,060	221,123	109,430	117,510	128,929	182,820	178,436	1,875,193
DE SOTO AND RED RIVER:													
Daily average	1,198	1,154	1,139	1,137	1,122	1,131	1,123	1,143	1,133	1,104	1,086	1,080	
Month	37,138	32,312	35,309	34,110	34,782	33,930	34,813	35,433	33,990	34,224	32,580	33,480	412,101
ELM GROVE:													
Daily average	265	220	252	277	256	248	270	267	308	327	304	272	
Month	8,215	6,160	7,812	8,310	7,936	7,440	8,370	8,277	9,240	10,137	9,120	8,432	99,449
HAYNESVILLE:													
Daily average	2,829	2,982	2,890	2,935	2,986	2,837	2,839	2,827	2,788	2,759	2,755	2,740	
Month	87,699	83,496	89,590	88,050	92,566	85,110	88,009	87,637	83,640	85,529	82,650	84,940	1,038,916
HOLLY:													
Daily average	81	80	72	72	91	84	81	80	89	85	81	77	
Month	2,511	2,240	2,232	2,160	2,821	2,520	2,511	2,480	2,670	2,635	2,430	2,387	29,597
HOMER:													
Daily average	2,658	2,667	2,675	2,683	2,775	2,763	2,755	2,750	2,743	2,744	2,745	2,739	
Month	82,398	74,676	82,925	80,490	86,025	82,890	85,405	85,250	82,290	85,064	82,350	84,909	944,672
LISBON:													
Daily average	7,378	6,655	4,330	4,696	3,285	3,008	2,789	2,781	5,748	4,912	5,553	5,225	
Month	228,718	186,340	134,230	140,880	101,835	90,240	86,459	86,211	172,440	152,272	166,590	161,975	1,708,190
PLEASANT HILL:													
Daily average	90	106	104	91	95	98	95	70	111	84	105	96	
Month	2,790	2,968	3,224	2,730	2,945	2,940	2,945	2,170	3,330	2,604	3,150	2,976	34,772
RODESSA:													
Daily average	28,717	28,023	28,752	28,694	27,265	27,029	26,965	17,600	23,136	22,289	22,282	22,011	
Month	890,227	784,644	891,312	860,820	845,215	810,870	835,915	545,600	694,080	690,959	668,460	682,341	9,200,443
SAREPTA-CARTERVILLE AND SHONGALOO:													
Daily average	430	420	420	506	465	470	373	381	399	396	392	383	
Month	13,330	11,760	13,020	15,180	14,415	14,100	11,563	11,811	11,970	12,276	11,760	11,873	153,058
SLIGO:													
Daily average	1,212	1,242	1,243	1,253	1,275	1,093	1,025	645	1,238	1,209	1,441	1,179	
Month	37,572	34,776	38,533	37,590	39,525	32,790	31,775	19,995	37,140	37,479	43,230	36,549	426,954
SUGAR CREEK:													
Daily average	357	355	340	336	336	265	323	257	366	344	387	353	
Month	11,067	9,940	10,540	10,080	10,416	7,950	10,013	7,967	10,980	10,664	11,610	10,943	122,170
URANIA:													
Daily average	2,633	2,679	2,769	2,625	2,737	2,791	2,715	2,579	2,566	2,545	2,652	2,958	
Month	81,623	75,012	85,839	78,750	84,847	83,730	84,165	79,949	76,980	78,895	79,560	80,538	969,888
ZWOLLE:													
Daily average	2,620	2,795	2,970	2,877	2,800	2,805	2,750	2,200	2,643	2,447	2,298	2,205	
Month	81,220	78,260	92,070	86,310	68,800	84,150	85,250	68,200	79,290	75,857	68,940	68,355	954,702
Daily average	72,675	72,413	73,057	75,817	72,294	73,196	70,334	52,667	65,983	66,148	70,060	68,259	69,363
Total 1939	2,252,925	2,027,564	2,264,767	2,274,510	2,241,114	2,195,880	2,180,354	1,632,677	1,979,490	2,050,588	2,101,800	2,116,029	25,317,698
Total 1938	2,474,017	2,199,008	2,426,215	2,374,830	2,473,645	2,381,070	2,482,170	2,470,390	2,324,700	2,398,005	2,150,100	2,187,298	28,341,448
Total 1937	2,450,860	1,963,220	2,157,259	2,169,090	2,397,664	2,489,310	2,747,685	2,724,218	2,647,350	2,326,767	2,178,870	2,341,430	28,593,723
Total 1936	1,566,554	1,757,603	1,961,959	1,902,420	2,565,219	2,316,510	2,530,406	2,539,675	2,411,370	2,374,383	2,344,920	2,478,202	26,749,221
Total 1935	721,897	644,224	711,791	691,590	716,167	693,420	716,844	764,367	801,540	971,168	985,260	1,211,232	9,629,495

and development of this extended area is under way. Village, during the year, was gradually increased from 250 to 440 acres of production, with reserves more than doubled.

The Lewisville field of Lafayette County, discovered in April, has seen mild development. A succession of dry holes have largely defined it; and although a second productive horizon in the Tokio was discovered in September, indications are that both that and the deeper lower Glen Rose reservoir will prove relatively small in comparison with the deeper Smackover-lime fields to the east.

The Graves sand was opened to small production in the Champagnolle field of Union County in July by J. R. Lockhart's No. 1 Jerry. In Ouachita County, between the old McDonald pool and the Stephens field, Sherry O'Brien completed No. 1 Cooke estate, Section 27-15-18, for a 20,000,000-cu. ft. gasser at 1,618 ft.

The success in discovering new reserves in the Smackover lime during the past 2 years led to considerable deep exploration on geophysical highs in South Arkansas in 1939. Out of 12 such wildcats drilled, however, only two were successful.

North Louisiana

North Louisiana saw a quiet year from the standpoint of new discoveries, with most of the results of drilling bringing extensions to producing areas. Of the deep tests drilled, the discovery well in the lower Marine formation at Lisbon stood out. The oil horizons in the Bodcaw and "D" sands at Cotton Valley were developed further along the southeast and south edges of the field.

Bisteneau, Bear Creek, Sligo and Waskom all high-pressure gas-condensate fields were further developed, with deep production brought in at Bisteneau, and extensions added to the other three fields. Shreveport, Caddo and Zwolle saw continuous development with a few minor extensions. Wildcats fared badly with failure of the deep Pine Island test particularly disappointing.

Lisbon's Deep Test

In December Lisbon Exploration Co.'s No. 1 Vaughn, a cooperative test, deepened from the Pettit producing zone to a total depth of 8,900 ft., opened lower Marine production in a gas-condensate sand perforated at 8,444-64 ft. This well, while of minor individual value as a gasser, opens important possibilities for production of condensate, and use of the high-pressure gas for repressuring the Pettit horizon, and possibly for recycling back to the deep sand, termed the Vaughn sand. Plans for this project on a cooperative basis are going forward.

Cotton Valley drilling tapered off, in expectation of unitization of the Bodcaw distillate reservoir in a field-wide recycling project, hence most of the operations

LA-ARK-TEX AND MISSISSIPPI DISCOVERIES IN 1939

Arkansas

Field, county, owner and farm—	Location	Date	Producing formation	Depth (ft.)	Initial production (bbl./day)	Total wells Dec. 31	Remarks
Big Creek, Columbia, Standard Oil Co. of Louisiana's No. 1 Petty Stave Lumber Co.	Sec. 4-17-21	December	Smackover lime	7,956-99	168	1	Gas-condensate production
Dorcheat, Columbia, Atlantic Refining Co.'s No. 1 Pine Wood Lumber Co.	Sec. 16-18-22	August	Smackover lime	8,801-70	528	3	
Lewisville, Lafayette, Erwin & Leath's No. 1 Patton	Sec. 24-16-24	April	Lower Glen Rose	3,405-15	160	10	
Lewisville, Lafayette, East Texas Refining Co.'s No. 1-B Bell	Sec. 19-16-23	September	Tokio	2,314-20	20	2	

North Louisiana

Field, parish, owner and farm—	Location	Date	Producing formation	Depth (ft.)	Initial production (bbl./day)	Total wells Dec. 31	Remarks
Temple, Caddo, Temple Oil Co.'s No. 1 Bostwick	Sec. 13-22-16	November	Woodbine	2,548-58	1,500	4	Extension area of Caddo field
Lisbon, Claiborne, Lisbon Exploration Co.'s No. 1 Vaughn	Sec. 36-21- 5	December	Lower Marine	8,444-64	65	1	Gas-condensate production deep horizon in Lisbon field

East Texas Border

Carthage, Panola, Turner & Smith's No. 1 Bird	Gillespie Sur.	May	Lower Glen Rose	4,982-98	495	1	Gas-condensate field
Smithland, Marion, M. D. Fitzwater's No. 1 Terry	W. Coor Sur.	June	Tokio	2,366-85	40	8	

Mississippi

Tinsley, Yazoo, Union Producing Co.'s No. 1 G. C. Woodruff	Sec. 13-10- 3	August	Selma chalk	4,538-60	186	7	First oil field in Mississippi
Tinsley, Yazoo, Union Producing Co.'s No. 1 Stevens	Sec. 13-10- 3	November	Eutaw	4,865-77	303	2	

ARKANSAS

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
ATLANTA:													
Daily average	95	21	11	240	335	407	333	276	465	416	419	504	
Month	2,945	588	341	7,200	10,385	12,210	10,323	8,556	13,950	12,896	12,570	15,624	107,588
BUCKNER:													
Daily average	1,385	1,455	1,542	1,659	1,709	1,876	1,974	1,081	2,282	2,337	2,439	2,546	
Month	42,935	40,740	47,802	49,770	52,979	56,280	61,194	33,511	68,460	72,447	73,170	78,926	678,214
CHAMPAGNOLLE:													
Daily average	1,727	1,856	1,724	1,812	1,404	1,306	1,625	1,257	1,393	1,380	1,355	1,339	
Month	53,537	51,968	53,444	54,360	43,524	39,180	50,375	38,967	41,790	42,780	40,650	41,509	552,084
DORCHEAT:													
Daily average	.....	.....	.....	.....	.....	.....	.....	55	206	304	305	446	
Month	.....	.....	.....	.....	.....	.....	.....	1,705	6,180	9,424	9,150	13,826	40,285
EL DORADO:													
Daily average	1,746	1,709	1,713	1,710	1,692	1,691	1,694	1,645	1,649	1,612	1,694	1,696	
Month	54,126	47,852	53,103	51,300	52,452	50,730	52,514	50,995	49,470	49,972	50,820	52,576	615,910
LEWISVILLE:													
Daily average	.....	.....	.....	.....	65	113	190	442	898	1,207	814	692	
Month	.....	.....	.....	.....	2,015	3,390	5,890	13,702	26,940	37,417	24,420	21,452	135,226
LISBON:													
Daily average	252	248	256	241	255	254	253	245	247	245	236	235	
Month	7,812	6,944	7,936	7,230	7,905	7,620	7,843	7,595	7,410	7,595	7,080	7,285	90,255
MAGNOLIA:													
Daily average	1,695	2,833	3,206	3,915	6,429	8,547	11,950	7,883	15,035	16,118	19,977	20,012	
Month	52,545	79,324	99,386	117,450	199,299	256,410	370,450	244,373	451,050	499,658	599,310	620,372	3,589,627
MILLER COUNTY (Miscellaneous):													
Daily average	340	346	349	345	336	301	238	272	303	299	295	290	
Month	10,540	9,688	10,819	10,350	10,416	9,030	7,378	8,432	9,090	9,269	8,850	8,990	112,952
NEVADA:													
Daily average	597	604	611	592	615	622	561	569	579	572	546	566	
Month	18,507	16,912	18,941	17,760	19,065	18,660	17,391	17,639	17,370	17,732	16,380	17,546	213,903
RODESSA:													
Daily average	5,054	5,203	5,215	5,085	4,237	4,139	3,724	2,515	3,113	3,085	2,957	2,852	
Month	156,674	145,684	161,665	152,550	131,347	124,170	115,444	77,965	93,390	95,635	88,710	88,412	1,431,646
SCHULER:													
Daily average	18,107	18,753	18,788	18,192	18,015	18,016	18,012	11,156	17,618	18,167	18,229	18,217	
Month	561,317	525,084	582,428	545,760	558,465	540,480	558,372	345,836	528,540	563,177	546,870	564,727	6,421,056
SMACKOVER (light oil):													
Daily average	1,968	1,896	1,892	1,891	1,916	1,930	1,915	1,900	1,899	1,896	1,893	1,867	
Month	61,008	53,088	58,652	56,730	59,396	57,900	59,365	58,900	56,970	58,776	56,790	57,877	695,452
SMACKOVER (heavy oil):													
Daily average	15,312	15,149	14,810	14,964	14,744	14,731	14,706	14,604	14,612	14,458	14,583	14,528	
Month	474,672	424,172	459,110	448,920	457,064	441,930	455,886	452,724	438,360	448,198	437,490	450,368	5,388,994
STEPHENS:													
Daily average	515	510	516	574	555	553	555	536	535	530	534	531	
Month	15,965	14,280	15,996	17,220	17,205	16,590	17,205	16,616	16,050	16,430	16,020	16,461	196,038
TROY:													
Daily average	993	972	1,060	961	957	946	1,230	1,204	1,281	1,276	1,254	1,229	
Month	30,783	27,216	32,860	28,830	29,667	28,380	38,130	37,324	38,430	39,556	37,620	38,099	406,995
URBANA:													
Daily average	1,098	1,117	1,165	1,172	1,070	1,069	1,080	1,035	1,036	970	944	926	
Month	34,038	31,276	36,115	35,160	33,170	32,070	33,480	32,085	31,080	30,070	28,320	28,706	385,570
VILLAGE:													
Daily average	516	511	594	676	571	819	1,035	616	1,005	1,003	1,265	1,350	
Month	15,996	14,308	18,414	20,280	17,701	24,570	32,085	19,096	30,150	31,093	37,950	41,850	303,493
Daily average	51,400	53,183	53,452	54,029	54,905	57,320	61,075	47,291	64,156	65,875	69,739	69,826	58,534
Total 1939	1,593,400	1,489,124	1,657,012	1,620,870	1,702,055	1,719,600	1,893,325	1,466,021	1,924,680	2,042,125	2,092,170	2,164,606	21,384,988
Total 1938	1,293,475	1,315,300	1,580,225	1,620,990	1,318,678	1,386,270	1,712,409	1,747,501	1,723,230	1,621,765	1,489,500	1,547,892	18,357,235
Total 1937	803,117	758,660	843,851	824,220	850,175	850,230	887,499	1,068,322	1,125,360	1,389,172	1,365,420	1,415,057	12,181,083
Total 1936	935,115	858,313	925,815	895,830	928,419	894,930	911,927	898,442	842,940	875,998	879,960	879,656	10,697,345
Total 1935	974,175	861,588	950,336	917,520	967,262	933,810	944,942	939,703	907,260	932,201	895,320	914,469	11,138,586

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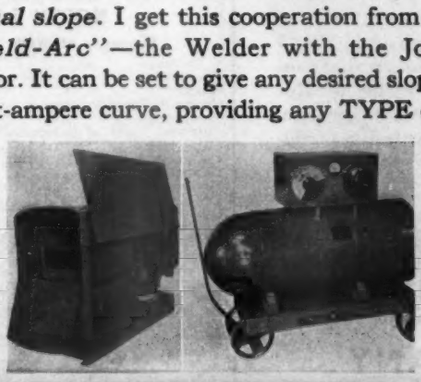

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were edge oil wells, or oil wells completed in the shallow 5,700-ft. Holloway sand.

At Bisteneau, in Bienville Parish, Arkansas Louisiana Gas Co. completed the deep test, No. 2 Gayoso Co., for a gas-condensate producer in the lower Marine formation, total depth 8,532 ft.

The Waskom field Travis Peak production at 6,000 ft. was proved across the state line from Harrison County, Texas, into Caddo Parish, Louisiana, by the Arkansas Louisiana Gas Co.'s No. 1 Bell. Further extensions to this field to the southwest were drilled.

Deep tests in North Louisiana were, with the exception of Lisbon and Bisteneau, failures. The test to which the most importance had been attached, Stanolind Oil & Gas Co.'s No. 131 Dillon heirs, in the Pine Island field of Caddo Parish, failed to find commercial production down to 11,419 ft.; and after plugging back and testing numerous horizons which showed possibilities, the operators were pulling casing at the end of the year, preparatory to abandonment.

East Texas Border Counties

In addition to the extension to the southwest, north and east of the Waskom gas-condensate field, the Joaquin field in Shelby County, Texas, received a southwest extension of the same type of production. Discovery of the Carthage field in Panola County added to the reserves of high pressure gas-condensate in the area. The discovery well, Turner & Smith's No. 1 Bird, Gillespie Survey, about 7 miles east of the town of Carthage, showed a potential flow of 24,000,000 cu. ft. of gas together with a yield of 20 to 25 bbl. of water-white condensate per million cubic feet of gas. The field was later defined ½ mile to the north by the same operators' No. 1 Panola Development Co.

In Marion County routine field development in the Jefferson and Lodi areas of the Rodessa extension declined late in the year. A shallow field named the Smithland field was discovered by M. D. Fitzwater's No. 1 Terry in June, and subsequent drilling brought the total number of small Tokio wells in the new pool to eight by the close of the year.

Mississippi

Mississippi came into national attention late in August when the Union Producing Co.'s No. 1 G. C. Woodruff, a Yazoo County wildcat cored oil sand in the Selma chalk formation at 4,540-60 ft. After completion as the state's first commercial oil well, interest in the state's further possibilities began a leasing, prospecting and wildcatting campaign which was still gaining momentum at the end of the year.

The Tinsley field served as the hub of such activity. Leasing radiated from the discovery well to include practically all acreage in the county and adjoining ones. Geophysical shooting was begun at Tinsley by most crews, to gain a picture of the structure for use in interpreting other structures in the state. Over 100 geophysical crews have shot the Tinsley dome, and their subsequent activity has extended through the central and northeastern section of the state.

Drilling at Tinsley on an enforced 40-acre spacing pattern is increasing with numerous outpost operations, despite the large holdings of the Union Producing Co. in the vicinity of the discovery well. At the last of the year, Edgar C. Johnston's No. 1 Broomfield, a mile north outpost found oil sand in the Woodruff horizon, proving it productive to the north of the Union Producing Co.'s No. 1 Stevens, which, lying between the outpost and main part of the field, had found no oil in the Woodruff, but opened new production in a sand of the Eutaw formation, directly underlying the Selma chalk. Both horizons have been defined on the west by a dry hole. At the end of the year, Tinsley numbered nine producing wells, seven in the Selma horizon and two in the Eutaw formation.

Wildcatting attending the Tinsley strike is not believed to have reached its full volume at the end of 1939, since geophysical exploration and leasing of blocks must come first. However, at the end of the year, in addition to the 24 wildcats staked or drilling, tests to be drilled on structures worked out by state and private geologists prior to the current play, are planned for the near future.

MISSISSIPPI

Daily Average and Monthly Production in 1939

Field—	Sept.	Oct.	Nov.	Dec.	Total
TINSLEY:					
Daily average	118	343	1,186	1,714	
Month	3,552	10,647	35,592	53,127	102,918

Alabama's Possibilities

The Northwest Alabama basin, one of the centers of current activity, may produce oil in 1940 from showings of oil at a shallow depth in the G. C. Grasty's No. 1 Kentucky Lumber Co. in Itawamba County, Mississippi. The test was still active at the end of the year, exploring deeper possibilities. Alabama is coming into the picture, with overflow of interest from Mississippi, particularly in the Northwest Alabama basin. Florida and Georgia contributed little of interest during 1939, but the latter state may enter the ranks of oil-producing states during 1940, since oil is reported showing in a Clinch County wildcat.

NORTH LOUISIANA

Summary of Wells Completed in 1939

Parish—	Comp.	Prod.	Dry	Gas*
Bienville	10	0	1	9
Bossier	23	895	7	4
Caddo-Rodessa	15	3,150	0	1
Caddo-Other	265	33,015	80	5
Caldwell	2	0	2	0
Catahoula	3	0	3	0
Claiborne	12	1,105	2	2
Concordia	1	0	1	0
De Soto	8	70	5	0
Franklin	2	0	2	0
Grant	9	120	6	0
La Salle	20	225	12	0
Madison	1	0	1	0
Morehouse	9	0	0	9
Natchitoches	2	0	2	0
Ouachita	7	0	0	7
Red River	4	25	1	0
Sabine	52	2,090	27	0
Tensas	1	0	1	0
Union	35	0	1	34
Webster	56	27,505	7	16
Total 1939	537	68,200	161	87

Completions by Months

Month—	Comp.	Prod.	Dry	Gas*
January	44	5,890	15	8
February	30	4,665	7	3
March	41	9,400	15	5
April	57	10,175	12	6
May	57	6,985	20	8
June	36	3,180	14	5
July	31	3,260	6	4
August	56	8,665	14	13
September	42	3,210	13	11
October	49	5,365	14	7
November	40	3,195	16	8

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SALEM, ILLINOIS EVANSVILLE, IND.

December	54	4,210	12	9
Total 1939	537	68,200	161	87
Total 1938	622	167,970	145	116
Difference	85	99,770	16	29

*Gas production: Bienville Parish, 307,720,000 cu. ft.; Bossier Parish, 70,000,000 cu. ft.; Caddo-Rodessa, 2,000,000 cu. ft.; Caddo-Other, 31,500,000 cu. ft.; Claiborne Parish, 15,050,000 cu. ft.; Morehouse Parish, 26,499,000 cu. ft.; Ouachita Parish, 7,944,000 cu. ft.; Union Parish, 201,641,000 cu. ft.; Webster Parish, 68,566,000 cu. ft.

ARKANSAS

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas*
Bradley	1	0	1	0
Calhoun	1	0	1	0
Clark	4	0	4	0
Clay	1	0	1	0
Columbia	103	55,470	6	1
Craighead	1	0	1	0
Howard	1	0	1	0
Independence	1	0	0	1
Lafayette	25	9,690	8	0
Lincoln	1	0	1	0
Little River	3	0	3	0
Lonoke	5	0	5	0
Miller-Rodessa	14	4,550	2	0
Miller-Other	1	0	1	0
Mississippi	1	0	1	0
Nevada	11	555	3	0
Ouachita	4	30	2	1
Pike	1	0	1	0
Paluski	1	0	1	0
Union	74	18,140	22	3
Total 1939	254	88,435	65	6

Completions by Months

Month—	Comp.	Prod.	Dry	Gas*
January	30	11,110	8	1
February	19	6,280	6	0
March	15	5,970	4	0
April	17	6,760	5	0
May	21	9,060	4	0
June	19	5,120	7	0
July	24	7,505	3	0
August	31	10,695	5	1
September	21	7,235	4	1
October	18	6,430	9	0
November	16	6,930	2	1
December	23	5,340	8	2
Total 1939	254	88,435	65	6
Total 1938	251	139,250	44	3
Difference	3	50,815	21	3

*Gas production: Columbia County, 4,100,000 cu. ft.; Independence County, 250,000 cu. ft.; Ouachita County, 20,000,000 cu. ft.; Union County, 7,200,000 cu. ft.

FLORIDA

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas
Lake	1	0	1	0
Monroe	1	0	1	0
Total 1939	2	0	2	0

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
March	1	0	1	0
June	1	0	1	0
Total 1939	2	0	2	0
Total 1938	0	0	0	0
Difference	2	0	2	0

GEORGIA

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas
Pierce	1	0	1	0
Total 1938	1	0	1	0

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
May	1	0	1	0
Total 1939	1	0	1	0
Total 1938	0	0	0	0
Difference	1	0	1	0

EAST TEXAS BORDER

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas*
Cass	2	0	1	1
Harrison	6	5	2	3
Marsion-Rodessa	33	10,180	0	4
Marion-Other	21	305	9	0
Panola	3	0	2	1
San Augustine	1	0	1	0
Shelby	3	0	1	2
Total 1939	69	10,490	16	11

Completions by Months

Month—	Comp.	Prod.	Dry	Gas*
January	10	1,905	1	1
February	2	235	0	0
March	3	1,340	0	0
April	2	240	1	0
May	7	890	4	2
June	5	1,870	0	0
July	9	650	3	2
August	5	795	1	0
September	7	850	2	2
October	6	295	1	1
November	11	1,095	3	3
December	2	325	0	0
Total 1939	69	10,490	16	11
Total 1938	135	37,225	15	10
Difference	66	26,735	1	1

*Gas production: Cass County, 20,000,000 cu. ft.; Harrison County, 61,600,000 cu. ft.; Marion-Rodessa, 94,200,000 cu. ft.; Panola County, 40,000,000 cu. ft.; Shelby County, 65,000,000 cu. ft.

MISSISSIPPI

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas*
Calhoun	1	0	1	0
Clarke	1	0	1	0
Harrison	1	0	1	0
Hinds	6	0	6	0
Humphreys	1	0	1	0
Issequena	2	0	2	0
Lafayette	1	0	1	0
Lamar	1	0	1	0
Lowndes	1	0	1	0
Madison	1	0	1	0
Rankin	2	0	1	1
Simpson	1	0	1	0
Wilkinson	1	0	1	0
Yalobusha	1	0	1	0
Yazoo	11	5,600	2	0
Total 1939	32	5,600	22	1

Completions by Months

Month—	Comp.	Prod.	Dry	Gas*
March	2	0	2	0
May	1	0	1	0
June	2	0	2	0
July	2	0	2	0
August	4	0	4	0
September	1	185	0	0
October	5	2,045	3	0
November	5	1,625	3	0
December	10	1,745	5	1
Total 1939	32	5,600	22	1
Total 1938	25	0	19	6
Difference	7	5,600	3	5

*Gas production: Rankin County, 25,000,000 cu. ft.

ALABAMA

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas
Barbour	1	0	1	0
Washington	1	0	1	0
Total 1939	2	0	2	0

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
March	1	0	1	0
November	1	0	1	0
Total 1939	2	0	2	0
Total 1938	3	0	3	0
Difference	1	0	1	0

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Annual Review

CEMENT, ST. LOUIS AND CREEK COUNTY POOLS SET OKLAHOMA PACE

By DAL DALRYMPLE

THE renaissance of several old producing areas featured oil operations in Oklahoma in 1939, with the bulk of drilling activity concentrated in a few counties that have paced the state consistently in recent years. The revival of the old fields began on a considerable scale in 1938, was expanded in 1939 and promises to continue unabated throughout 1940.

The wildcatters ranged afar during the past year in their never-ending search for new reserves, but, with a few exceptions, the results were disappointing. Many highly touted tests located on promising structures failed to perform satisfactorily, and most of the wildcats that did uncover production were located on so-called "pimples" that previously had been overlooked in or near old producing districts. Indeed, the only rank wildcat to find important production was the discovery well in the Hobart field of Kiowa County. Near the end of 1939, a wildcat opened the first oil pool in McClain County, but it is a comparatively short distance from production in Pottawatomie and Pontotoc counties and may be considered as an extension of the play from those districts.

There was more drilling activity in both wildcat and proven fields in 1939 than in the preceding year. A total of 1,761 wells were completed, a gain of 107 over 1938. This total does not include completions in the Nowata-Chelsea water-flood district and in other northeastern stripper districts where numerous shallow wells were drilled. Wildcat completions increased from 179 in 1938 to 189 the past year. The increased activity in the state is reflected in the following figures:

	1938	1939
Total completions	1,654	1,761
Oil wells	986	1,045
Gas wells	123	113
Dry holes	545	603
Wildcat producers	47	33
Wildcat failures	132	156

The major increases in activity were in Caddo, Creek, Jackson, Payne and Pottawatomie counties. Counties in which there were noticeable declines in activity included Carter, Jefferson, Oklahoma, Okmulgee and Seminole counties.

Three Areas Lead

Three areas were outstanding in field activity throughout the year: Creek County, as a whole; St. Louis district of Pottawatomie County, and the Cement field of Caddo County.

The revival of activity in Creek County was outstanding because it came after a greater period of years than in the other renascent areas. Development of Creek County oil and gas reserves began as far back as 1906, following discovery of the Glenn pool late in 1905. Subsequently, there were major discoveries in the Cushing-Drumright and Bristow-Slick dis-

OKLAHOMA DISCOVERIES IN 1939

Field, county—	Location
Kaw, Osage	24-26- 4
East Searight, Seminole	34-10- 6
Georgia Gas, Payne	25-18- 4
West Nuyaka, Creek	24-14-10
Vanderslice, Creek	30-14- 7
East Bruce, Creek	12-17- 9
West Doyle, Stephens	4-1n- 5w
Butterly, Garvin	22-1n- 1e
West Walker, Creek	20-17- 9
South Newalla, Oklahoma	30-11- 1e
Hobart, Kiowa	20- 7-17w
Sacred Heart, Pottawatomie	19- 6- 5
S. Hickory Creek, Osage	10-28-11
Norman, Cleveland	17- 9- 2w
Caddo, Carter	35- 3s- 1e
North Bebee, Seminole-Pottawatomie	10- 5- 5
King, Pottawatomie	31-15- 5
West King, Pottawatomie	36-10- 4
....., McIntosh	14-11-16
Jones, Oklahoma	28-13- 1e
....., Hughes	23- 6- 8
....., Lincoln	20-17- 6
....., Cleveland	16- 9- 2w
Milroy, Stephens	24- 2s- 4w
....., Kingfisher	15-18- 9w
Chism, McClain	10- 5- 3e
Cement Extensions, Caddo	6n-10w & 5n-9w
St. Louis Extensions, Pottawatomie	6n & 7n, 3, 4 & 5e
Coyle, Payne	7n- 1e

Operator	Month	No. wells
Olson Oil Co.	January	5
H. S. Moss	March	4
Starr Oil & Gas Co.	March	1
Dunn and others	April	5
Burke-Greis Co.	May	1
Adams and others	May	5
Phillips Petroleum Co.	May	1
Kerlyn Oil Co.	May	1
Marshall Strozier	May	3
R. Olsen and others	June	1
Gled Oil Co.	June	3
Alma Oil Co.	June	7
Charles Petroleum Co.	June	3
Nels Burton	July	1
Pure Oil Co.	July	1
Culver & Shepherd	July	4
George Pace and others	September	3
S. D. Butcher and others	October	2
W. B. Pine	October	1
Hall & Briscoe	October	1
Stanley Rogers	October	2
R. L. Kemp	November	1
Nels Burton	November	1
Carter Oil Co.	December	1
Anderson-Prichard	December	1
Patsy Oil Co.	December	1
Stephens and others		
Iglehart and others		
Helmerich & Payne and others		

Producing formation	Total depth, ft.	Initial production
Burbank	3,210	100
Cromwell	4,630	1,000
Prue-Skinner	4,123	1,880,000 cu. ft.
Dutcher, Misener	2,666	110-1,500
Prue	2,884	4,000,000 cu. ft
Oswego	1,780	50
Sand	5,620	1,071
Sand	5,005—Pay 2,730	2,600,000 cu. ft.
Bartlesville	2,543	100
Hunton	6,636	231
Viola	1,055	2,000
Earlsboro	4,062—P.B. 2,900	1,200
Peru	976	175
Wilcox	7,695	321
Sycamore	8,500—P.B. 4,454	182
Sand-Hunton	2,668	450
Simpson	4,600	840
Hunton	4,532	1,084
Sand	2,372	4,500,000 cu. ft.
Cleveland	6,058—P.B. 5,158	100
Booch	2,675	100
Prue	2,910	25
Simpson	7,646	68
Hunton	8,157—P.B. 4,875	2,067
Lime	8,507—Per. csg.	3,000,000 cu. ft.
Viola	3,623	1,000
Sands-Limes	3,000-4,000	100-5,000
Sands-Limes	3,800-4,500	50-3,000
Wilcox	4,800-4,900	200-1,000

OKLAHOMA

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
WASHINGTON COUNTY:													
Daily average	2,945	3,599	3,867	3,527	3,643	3,712	3,470	2,189	3,649	3,427	3,454	3,449	
Month	91,295	100,772	119,877	105,810	112,933	111,360	107,570	67,859	109,470	106,237	103,620	106,919	1,243,722
NOWATA COUNTY:													
Daily average	12,351	12,318	12,679	12,644	12,786	12,683	12,563	6,743	12,336	11,912	12,060	11,970	
Month	382,881	344,904	393,049	379,320	396,366	380,490	389,453	209,033	370,080	369,272	361,800	371,070	4,347,718
ROGERS COUNTY:													
Daily average	1,953	1,838	2,098	2,096	2,254	2,093	2,324	1,267	2,454	2,336	2,224	2,221	
Month	60,543	51,464	65,038	62,880	69,874	62,790	72,044	39,277	73,620	72,416	66,720	68,851	765,517
OSAGE AND EASTERN KAY COUNTIES:													
Burbank—													
Daily average	7,803	7,593	7,945	7,775	8,240	6,817	7,894	4,561	7,746	7,572	7,234	7,240	
Month	241,893	212,604	246,295	233,250	255,440	204,510	244,714	141,391	232,380	234,732	217,020	224,440	2,688,669
South Burbank—													
Daily average	9,355	9,305	9,332	9,291	9,332	9,346	9,384	4,736	8,059	8,566	8,486	8,465	
Month	290,005	260,540	289,292	278,730	289,292	280,380	290,904	146,816	241,770	265,546	254,580	262,415	3,150,270
Naval Reserve—													
Daily average	4,411	4,235	4,204	4,109	4,345	4,310	3,952	2,147	3,677	4,058	3,934	3,941	
Month	136,741	118,580	130,324	123,270	134,695	129,300	122,512	66,557	110,310	125,798	118,020	122,171	1,438,278
Other Osage pools—													
Daily average	12,067	13,817	12,666	12,788	13,618	13,592	13,143	7,008	13,653	13,775	13,044	13,072	
Month	374,077	386,876	392,646	383,640	422,158	407,760	407,433	217,248	409,590	427,025	391,320	405,232	4,625,005
TULSA COUNTY (Miscellaneous):													
Daily average	3,065	3,094	3,253	3,071	3,133	3,117	2,980	1,570	3,078	2,863	3,105	2,997	
Month	95,015	86,632	100,843	92,130	94,133	93,510	92,380	48,670	92,340	88,753	93,150	92,907	1,073,453
WAGONER COUNTY:													
Daily average	742	767	740	667	738	722	689	337	688	837	710	716	
Month	23,002	21,476	22,940	20,010	22,878	21,660	21,359	10,447	20,640	25,947	21,300	22,196	253,855
OKMULGEE COUNTY:													
Daily average	4,528	4,366	4,523	4,108	4,702	4,126	4,320	2,521	3,746	3,534	4,064	4,046	
Month	140,368	122,248	140,213	123,240	145,762	123,780	133,920	78,151	112,380	109,554	121,920	125,426	1,476,962
MUSKOGEE AND McINTOSH COUNTIES:													
Daily average	850	839	923	762	730	743	715	571	620	914	760	802	
Month	26,350	23,492	28,613	22,860	22,630	22,290	22,165	17,701	18,600	28,334	22,800	24,862	280,697
OKFUSKEE COUNTY (Miscellaneous):													
Daily average	2,216	2,130	2,085	1,991	2,253	2,193	2,066	1,177	2,316	2,047	2,318	2,293	
Month	68,696	59,640	64,635	59,730	69,843	65,790	64,046	36,487	69,480	63,457	69,540	71,083	762,427

(Continued on Next Page)

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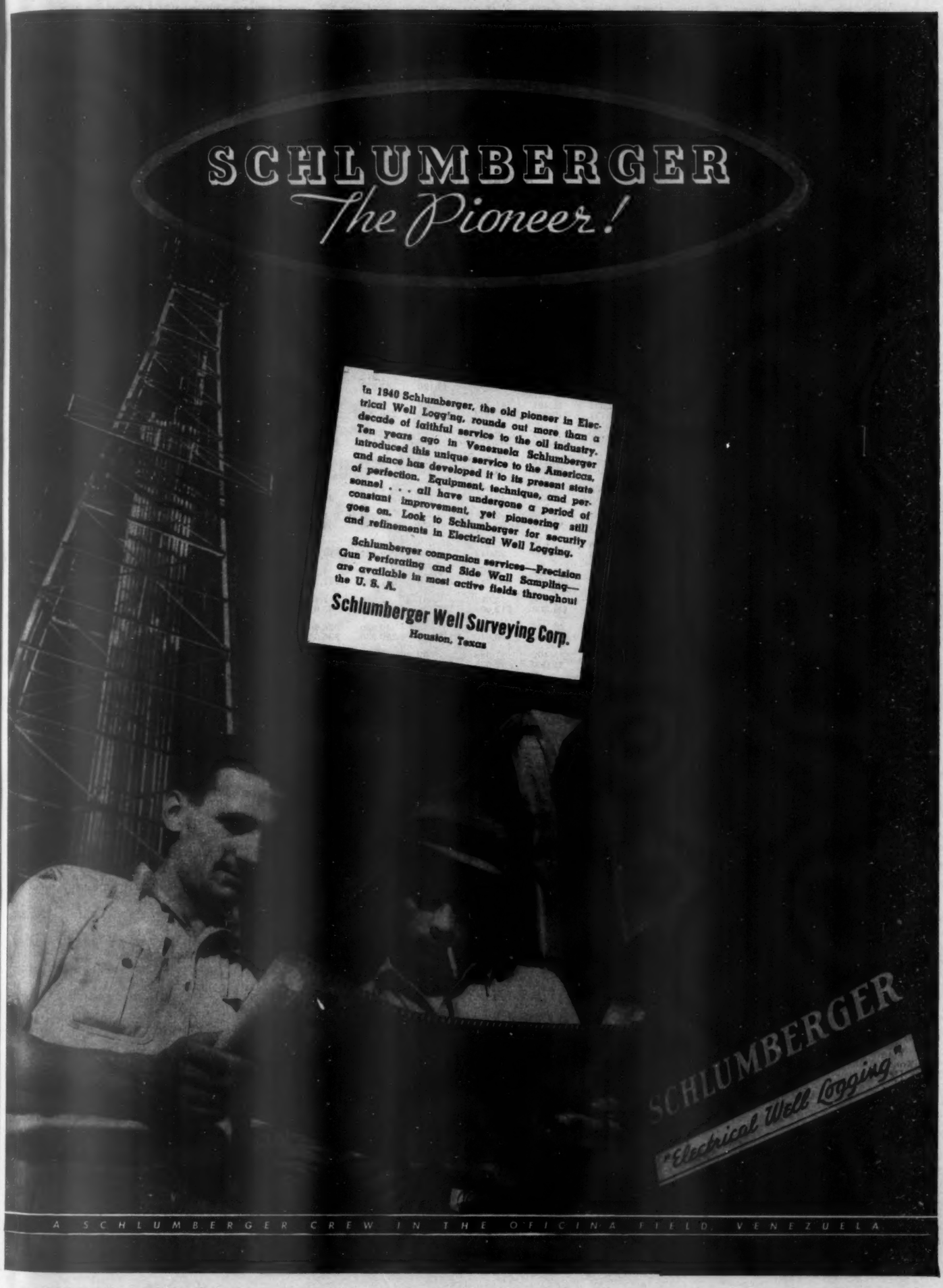

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tricts with their resultant booms. In time, Creek County activity lapsed and for several years the big work was in other counties. In the last 2 years, however, several new pools were discovered and operations increased to such an extent that in 1939 it was the next busiest county in Oklahoma, its 206 completions being exceeded only by the 269 completions in Pottawatomie County. Indeed, there were times during the year when there were more drilling wells in Creek County than anywhere else in the state. The operations were scattered generally over the county, no one pool having much of a lead over the others. Several new oil and gas areas were uncovered, the strikes generally being classed as extensions of older pools. One of the more important of the Creek County discoveries was the West Nuyaka (or Dunn) pool, Sections 34 and 35-14-10, where sizeable reserves in Dutcher, Misener and Wilcox sands were found. Generally, the Creek County wells have small daily production but continue to produce for many years.

Pottawatomie County led the state in field operations during the year, yielding to Creek County only a few times. A total of 269 wells were completed in Pottawatomie, as against 174 in 1938. These totals do not include old wells deepened, plugged back or otherwise reworked and recompleted, of which there was a large number.

Activity at St. Louis

The St. Louis district of Pottawatomie County was consistently the busiest single area of the state throughout the year. Many wells that were drilled during the heyday of the Greater Seminole-St. Louis-Pearson boom of several years ago were reworked, being deepened to new pay zones or plugged back to shallow horizons that were passed up during the boom days. The revival at St. Louis was not confined to old wells, however, as numerous new wells were drilled and new productive sectors opened. The St. Louis district in reality comprises several pools which, because of similarity of production and location, are classed in the one field.

The new development saw the St. Louis district extended to, and then across, the Seminole County line. Extensions of the field were made in nearly every

OKLAHOMA (Continued)

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
SEMINOLE, HUGHES, POTTAWATOMIE, AND PONTOTOC COUNTIES:													
Seminole City—													
Daily average	7,602	7,722	8,136	8,149	8,363	8,310	6,865	4,041	6,015	6,678	7,269	7,019	
Month	235,662	216,216	252,216	244,470	259,253	249,300	212,815	125,271	180,450	207,018	218,070	217,589	2,618,330
East Seminole—													
Daily average	1,455	1,470	1,422	1,338	1,370	1,372	1,149	715	1,061	1,108	1,111	1,125	
Month	45,105	41,160	44,082	40,140	42,470	41,160	35,619	22,165	31,830	34,348	33,330	34,875	446,284
West Seminole—													
Daily average	1,612	1,628	1,543	1,623	1,590	1,604	1,212	767	1,054	1,206	1,343	1,280	
Month	49,972	45,584	47,833	48,690	49,290	48,120	37,572	23,777	31,620	37,386	40,290	39,680	499,814
Earlsboro district—													
Daily average	10,152	9,947	10,552	11,401	11,562	11,540	8,090	6,194	8,975	10,022	10,677	9,036	
Month	314,712	278,516	327,112	342,030	358,422	346,200	250,790	192,014	269,250	310,682	320,310	280,116	3,590,154
Little River, East Little River, West Little River—													
Daily average	8,517	8,660	8,720	8,077	9,783	8,840	6,907	5,155	7,344	7,010	8,306	6,994	
Month	264,027	242,480	270,320	242,310	303,273	265,200	214,117	159,805	220,320	217,310	249,180	216,814	2,865,156
Searight and East and North Searight—													
Daily average	2,305	2,415	2,635	3,218	3,057	2,615	1,943	1,343	1,779	1,765	2,293	2,042	
Month	71,455	67,620	81,685	96,540	94,767	78,450	60,233	41,633	53,370	54,715	68,790	63,302	832,560
Mission—													
Daily average	1,400	1,534	1,623	1,574	1,601	1,572	1,272	806	1,110	997	1,275	1,233	
Month	43,400	42,952	50,313	47,220	49,631	47,160	39,432	24,986	33,300	30,907	38,250	38,223	485,774
Carr City—													
Daily average	3,035	3,030	2,997	2,938	2,968	2,969	2,290	1,616	1,895	1,973	2,420	2,238	
Month	94,085	84,840	92,907	88,140	92,008	89,070	70,990	50,096	56,850	61,163	72,600	69,378	922,127
Maud—													
Daily average	1,079	1,117	1,116	853	753	813	617	323	552	566	646	606	
Month	33,449	31,276	34,596	25,590	23,343	24,390	19,127	10,013	16,560	17,546	19,380	18,786	274,056
Bowlegs—													
Daily average	7,945	8,269	8,665	8,483	8,593	8,419	7,015	4,251	5,820	6,628	7,099	6,963	
Month	246,295	231,532	268,615	254,490	266,383	252,570	217,465	131,781	174,600	205,468	212,970	215,853	2,678,022
Dora—													
Daily average	4,453	4,326	3,928	3,710	3,613	3,591	2,970	1,452	2,562	2,325	2,552	2,544	
Month	138,043	121,128	121,768	111,300	112,003	107,730	92,070	45,012	76,860	72,075	76,560	78,864	1,153,413
Total Seminole field:													
Daily average	49,555	50,118	51,337	51,364	53,255	51,645	40,330	26,663	38,167	40,278	44,991	41,080	
Month	1,536,205	1,403,304	1,591,447	1,540,920	1,650,843	1,549,350	1,250,230	826,553	1,145,010	1,248,618	1,349,730	1,273,480	16,365,690
Asher and West Asher—													
Daily average	376	370	399	402	388	392	341	342	425	333	329	331	
Month	11,656	10,360	12,369	12,060	12,028	111,760	10,571	10,602	12,750	10,323	9,870	10,261	134,610
Allen district—													
Daily average	5,627	6,202	6,309	6,742	6,686	6,814	6,714	3,368	6,802	6,516	6,790	6,760	
Month	174,437	173,656	195,579	202,260	207,266	204,420	208,134	104,408	204,060	201,996	203,700	209,560	2,289,476
Beebe and East Beebe—													
Daily average	2,767	2,857	2,861	2,778	2,899	2,813	2,891	1,588	3,013	2,871	2,864	2,871	
Month	85,777	79,996	88,691	83,340	89,869	84,390	89,621	49,228	90,390	89,001	85,920	89,001	1,005,224
Bethel and North Bethel—													
Daily average	2,316	2,275	2,326	2,256	2,233	2,229	2,062	1,267	1,909	1,811	2,042	2,012	
Month	71,796	63,700	72,106	67,680	69,223	66,870	63,922	39,277	57,270	56,141	61,260	62,372	751,617
Conservation—													
Daily average	101	91	81	90	91	90	79	21	111	80	68	72	
Month	3,131	2,548	2,511	2,700	2,821	2,700	2,449	651	3,330	2,480	2,040	2,232	29,593
Cromwell, North and South Cromwell—													
Daily average	3,529	3,089	3,487	3,475	3,619	3,571	3,338	1,760	3,158	3,238	3,196	3,183	
Month	109,399	86,492	108,097	104,250	112,189	107,130	103,478	54,560	94,740	100,378	95,880	98,673	1,175,266
Dill—													
Daily average	916	902	984	1,026	1,356	1,319	1,144	486	914	977	876	881	
Month	28,396	25,256	30,504	30,780	42,036	39,570	35,464	15,066	27,420	30,287	26,280	27,311	358,370
Fish—													
Daily average	2,571	3,415	3,676	4,535	5,001	5,084	4,029	2,264	3,662	3,572	3,777	3,693	
Month	79,701	95,620	113,956	136,050	155,031	152,520	124,899	70,184	109,860	110,732	113,310	114,483	1,376,348
Fitts—													
Daily average	33,161	31,522	29,661	28,569	27,026	25,944	24,583	12,742	21,683	21,633	22,178	21,713	
Month	1,027,991	882,616	919,491	857,070	837,806	778,320	762,073	395,002	650,490	670,623	665,340	673,103	9,119,925
Gray—													
Daily average	762	889	863	866	892	882	754	464	685	765	755	749	
Month	23,622	24,892	26,753	25,980	27,652	26,460	23,374	14,384	20,550	23,715	22,650	23,219	283,251
Grisso—													
Daily average	148	183	168	109	182	169	109	57	137	91	94	93	
Month	4,588	5,124	5,208	3,270	5,642	5,070	3,379	1,767	4,110	2,821	2,820	2,883	46,682
Holdenville—													
Daily average	802	804	850	865	783	791	750	524	736	753	671	708	
Month	24,862	22,512	26,350	25,950	24,273	23,730	23,250	16,244	22,080	23,343	20,130	21,948	274,672
Jesse—													
Daily average	2,485	2,394	2,438	2,448	2,531	2,494	2,206	1,423	2,052	1,890	2,213	2,207	
Month	77,035	67,032	75,578	73,440	78,461	74,820	68,386	44,113	61,560	58,590	66,390	68,417	813,822
Keokuk—													
Daily average	3,755	3,693	3,653	3,598	3,636	3,643	3,440	1,950	2,774	2,548	3,016	3,009	
Month	116,405	103,404	113,243	107,940	112,716	109,290	106,640	60,450	83,220	78,988	90,480	93,279	1,176,055
Sasakwa townsite—													
Daily average	341	381	404	391	534	516	443	216	219	412	411	409	
Month	10,571	10,668	12,524	11,730	16,554	15,480	13,733	6,696	6,570	12,772	12,330	12,679	142,307
Konawa, East and West Konawa—													
Daily average	2,759	1,710	1,795	1,903	2,120	2,072	1,779	938	1,513	1,508	1,724	1,733	
Month	85,529	47,880	55,645	57,090	65,720	62,160	55,149	29,078	45,390	46,748	51,720	53,723	655,832
Olympic—													
Daily average	3,520	3,449	3,354	3,047	3,111	3,019	2,535	1,523	2,687	2,636	2,538	2,626	
Month	109,120	96,572	103,974	91,410	96,441	90,570	78,585	47,213	80,610	81,716	76,140	81,406	1,033,757
Shawnee—													
Daily average	966	967	901	859	1,039	1,012	1,367	363	1,063	1,545	1,787	1,697	
Month	29,946	27,076	27,931	25,770	32,209	30,360	42,377	11,253	31,890	47,895	53,610	52,607	412,924
St. Louis-Pierson—													
Daily average	28,566	29,469	33,960	35,221	36,477	36,919	30,028	18,681	27,059	28,530	35,368	31,512	
Month	885,546	825,132	1,052,760	1,056,630	1,130,787	1,107,570	930,868	579,111	811,770	884,430	1,061,040	976,872	11,302,516
Sasakwa—													
Daily average	1,313	1,342	1,392	1,365	1,370	1,362	1,201	751	1,510	1,339	1,356	1,349	
Month	40,703	37,576	43,152	40,950	42,470	40,860	37,231	23,281	45,300	41,509	40,680	41,819	475,531
Papoose—													
Daily average	696	683	737	706	662	671	617	392	644	647	655	648	
Month	21,576	19,124	22,847	21,180	20,522	20,130	19,127	12,152	19,320	20,057	19,650	20,088	235,773
Wofford—													
Daily average	289	223	327	245	200	211	165	44	143	116	115	121	
Month	8,959	6,244	10,137	7,350	6,200	6,330	5,115	1,364	4,290	3,596	3,450	3,751	66,786

(Continued on Page 110)

OF SERVICE LIFE OF YOUR DRILL STEM

THE SAFETY AREA OF

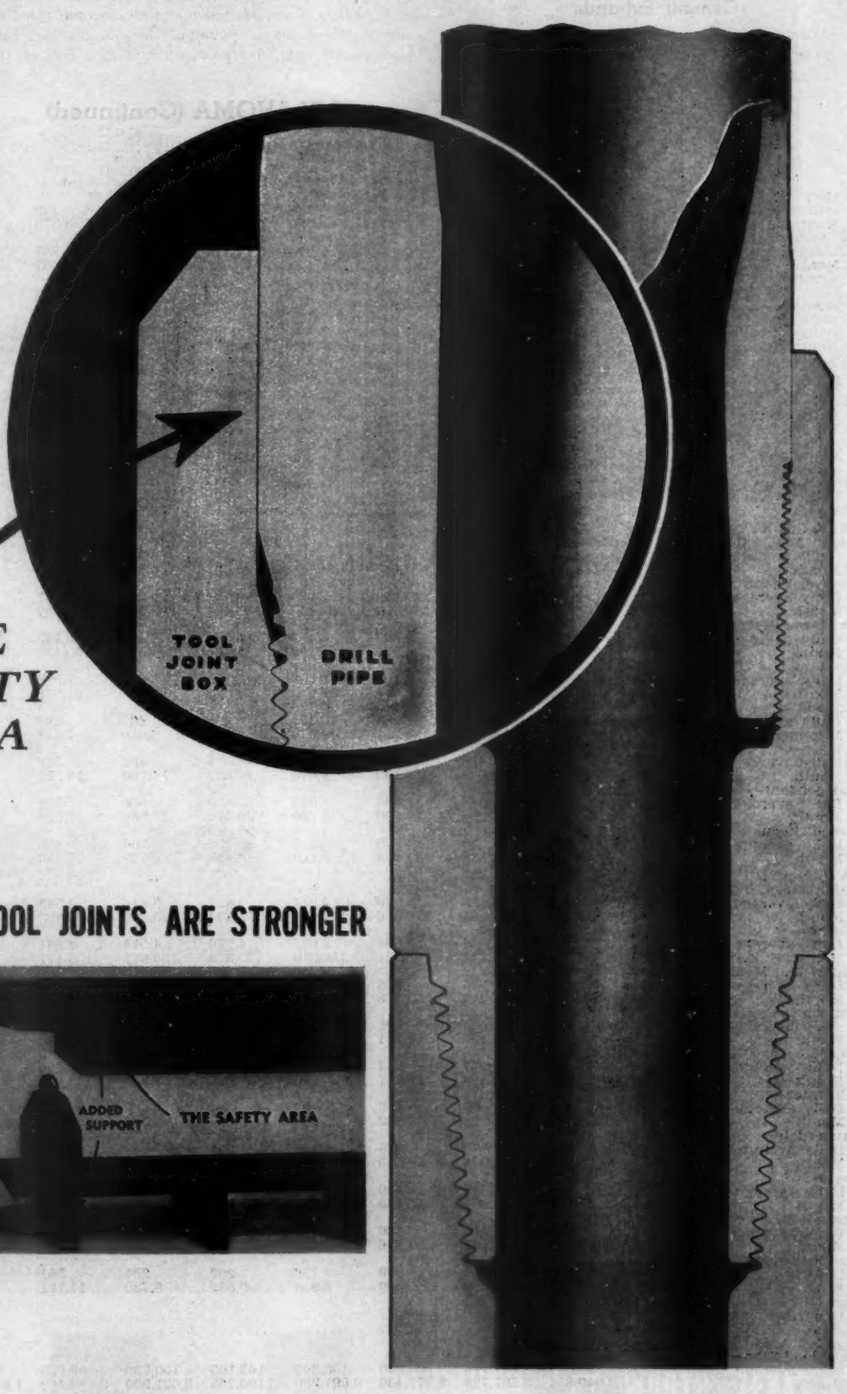
REED

SHRINK-GRIP

TOOL JOINTS

IS AN ADDED SUPPORT SHRUNK ONTO THE DRILL PIPE FOR

GREATER SAFETY



THE SAFETY AREA

WHY REED SHRINK-GRIP TOOL JOINTS ARE STRONGER

BIT COMPANY

Main Office and Plant:
Houston, Texas

direction, and several inside sectors that previously had been overlooked were proven for production. Twin or triplet wells were drilled in many instances. There was no indication of a decline in St. Louis activity at the end of the year, and the development was expected to continue during the new year.

The Shawnee pool contributed to the upswing in Pottawatomie County activity. Dormant for many months, the Shawnee area was revived in May with the completion of a 300-bbl. well in Section 6-10-4, which extended the pool nearly ½ mile southwestward and almost to the Shawnee city limits. This resulted in a small flurry of activity, and operations were still underway there at the year end, although the productive limits had been fairly well defined. Production was from Earlsboro sand.

Cement Expands

The Cement field in Caddo County, an old area that was given new life with completion of some big producers and several extensions in 1938, continued to be the most spectacular single field in the state the past year. Several wells that were classed as wildcats proved westward and northwestward extensions, and as yet there is no definite indication as to how far the field may go in those directions. To add to the general hilarity, drilling was started on Cement townsite, in the eastern sector of the field and hitherto undeveloped. The townsite drilling was given impetus with completion of 5,475-bbl. well, and at the end of the year several wells with production ranging above 1,000 bbl. each had been completed on the townsite. Elsewhere in the field several new pay zones were uncovered, it now being acknowledged that there are at least 18 pay horizons proven at Cement, as follows: Fortuna, Noble-Olson, Griffen, upper Rowe, middle Rowe, lower Rowe, Niles, Yule, Wade, Medrano, Marchand, Lackey, Culp, Melton and first, second, third and fourth Deese zones. Some of these sands and limes produce oil only, gas only, oil and gas, and are dry in spots and productive in other spots. So numerous are the pay zones and so irregular the sands, that it has been said with some justice that every well drilled at Cement is a wildcat. Size of Cement oil wells range from 25 to 50 bbl. upward to 5,000-7,000 bbl., and some of the Cement gas wells rate among the very largest in the world.

New work in the Tipton and Altus fields of Jackson County, farthest southwest producing areas in the state, contributed largely to the increase in operations. A total of 72 wells were completed in this county, compared with only 5 completions the preceding year. The completions included 18 failures and 1 gas well, the remainder being small oil wells.

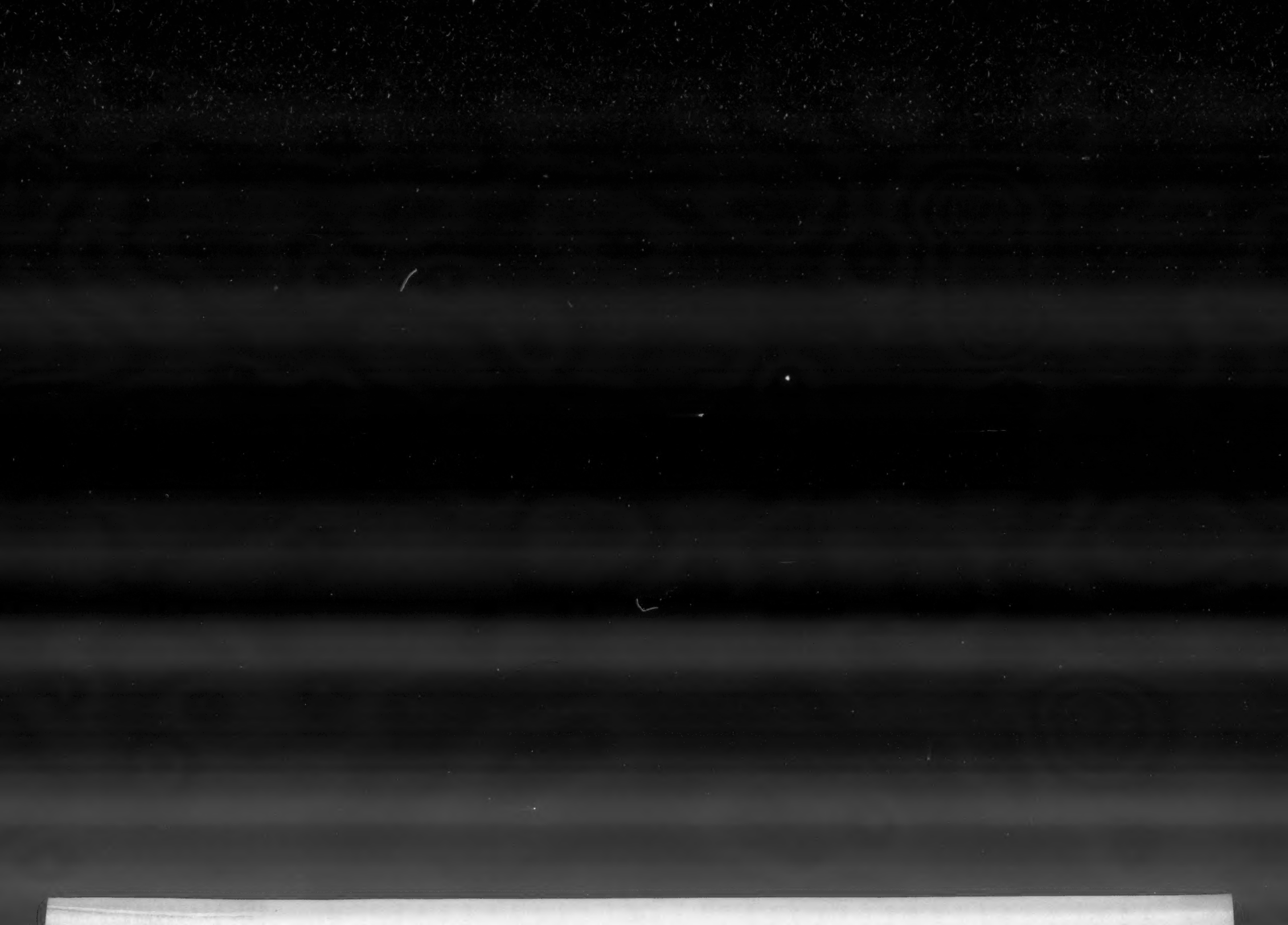
The Sax and Fox pool accounted for a majority of the Lincoln County operations, that area proving to be one of the banner Prue sand fields in the state. Initial production of some of the Sac and Fox wells ranged as high as 500 bbl., but a majority of them averaged around 100 bbl. initially. The field was

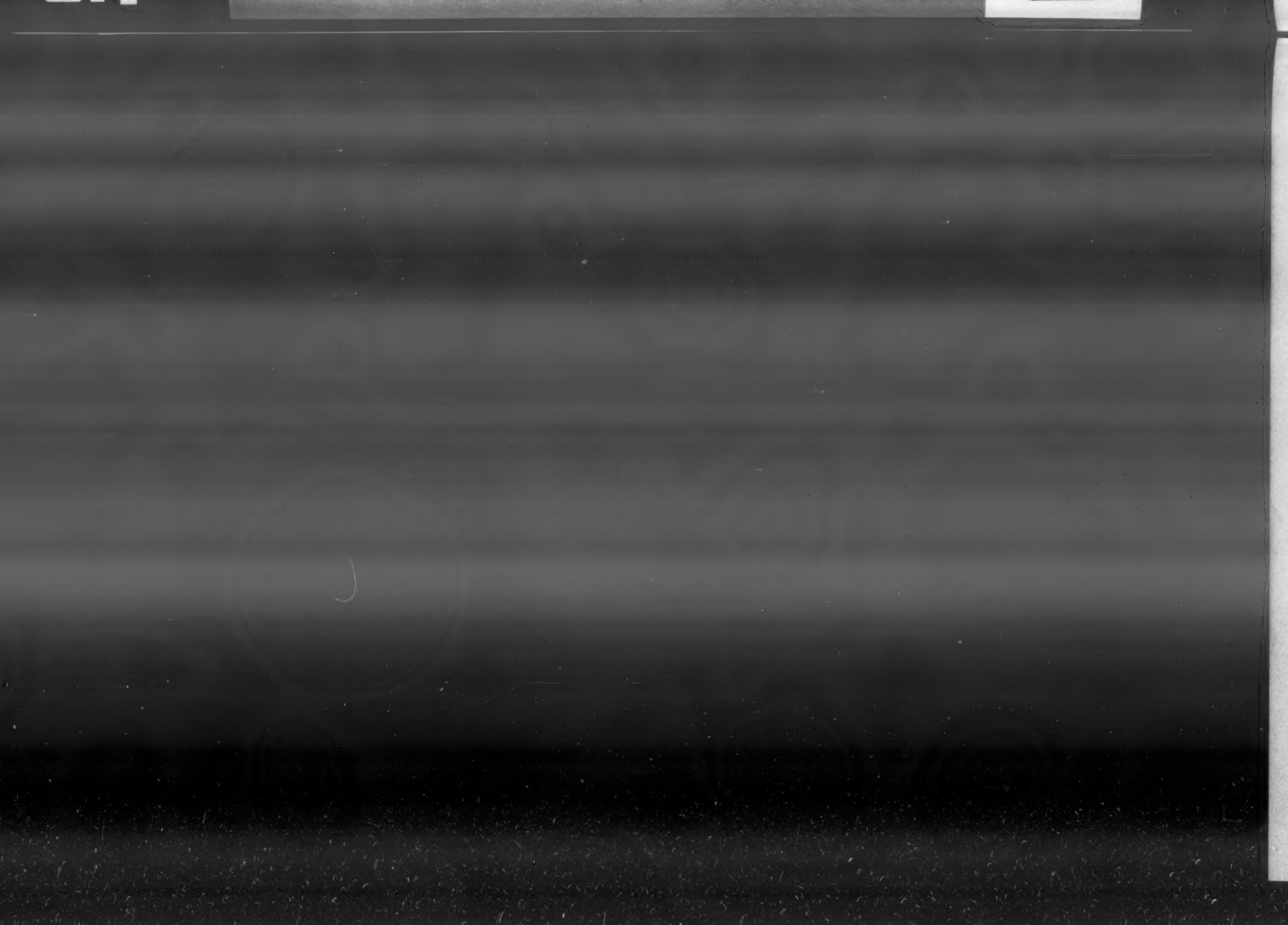
OKLAHOMA (Continued)

Daily Average and Monthly Production in 1939

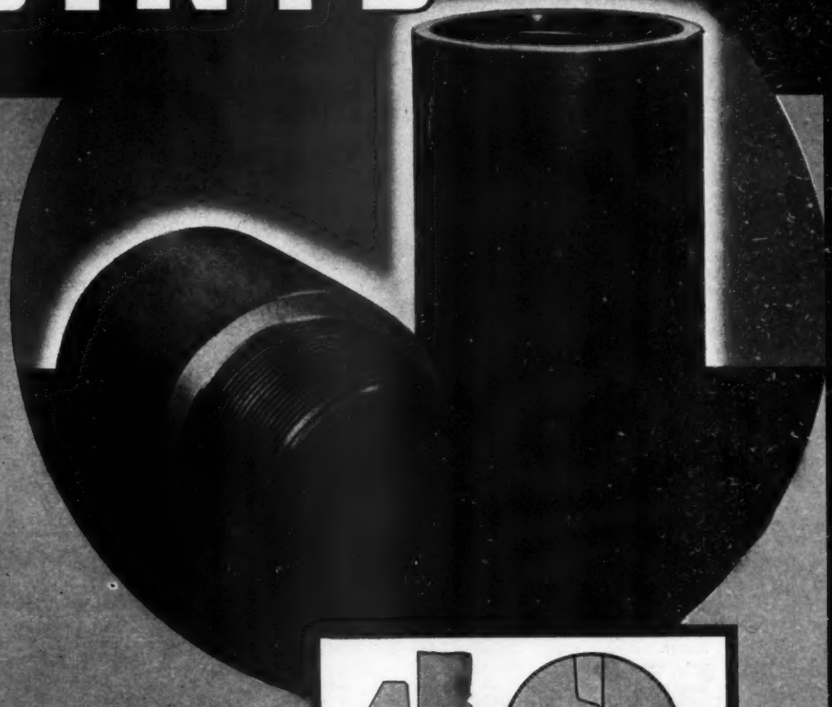
	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
Wetley—													
Daily average	152	127	125	136	139	133	109	60	150	107	116	118	
Month	4,712	3,556	3,875	4,080	4,309	3,990	3,379	1,860	4,500	3,317	3,480	3,658	44,716
Wewoka district—													
Daily average	2,012	2,680	2,434	2,090	2,111	2,093	1,987	1,192	1,978	1,969	2,047	2,009	
Month	62,372	75,040	75,454	62,700	65,441	62,790	61,597	36,952	59,340	61,039	61,410	62,279	746,414
Grayson—													
Daily average	692	932	1,267	1,512	1,470	1,472	1,304	751	1,227	1,560	1,611	1,592	
Month	21,452	26,096	39,277	45,360	45,570	44,160	40,424	23,281	36,810	48,360	48,330	49,352	468,472
Traugh—													
Daily average	1,485	1,406	1,369	1,314	1,156	1,184	1,035	554	868	918	914	912	
Month	46,035	39,368	42,439	39,420	35,836	35,520	32,085	17,174	26,040	28,458	27,420	28,272	398,067
Adams—													
Daily average	785	775	949	943	939	936	739	387	517	486	577	557	
Month	24,335	21,700	29,419	28,290	29,109	28,080	22,909	11,997	15,510	15,066	17,310	17,267	260,992
Hazel—													
Daily average	504	573	644	547	547	551	451	273	431	411	436	429	
Month	15,624	16,044	19,964	16,410	16,957	16,530	13,981	8,463	12,930	12,741	13,080	13,299	176,023
Avoca—													
Daily average	291	337	366	389	715	702	618	286	482	575	641	626	
Month	9,021	9,436	11,346	11,670	22,165	21,060	19,158	8,866	14,460	17,825	19,230	19,406	183,643
Miscellaneous—													
Daily average	1,055	1,008	1,010	1,024	1,036	1,009	1,016	639	1,121	2,084	1,986	2,008	
Month	32,705	28,224	31,310	30,720	32,116	30,270	31,496	19,809	33,630	64,604	59,580	62,248	456,712
CREEK COUNTY—													
Glenn Pool, Sapulpa, and Bowden—													
Daily average	3,768	4,078	4,285	3,805	4,139	4,010	4,148	2,405	4,221	3,920	4,190	4,087	
Month	116,808	114,184	132,835	114,150	128,309	120,300	128,588	74,555	126,630	121,520	125,700	126,697	1,430,276
Cushing-Shamrock—													
Daily average	9,969	10,083	10,014	9,939	10,107	9,962	9,647	5,516	9,378	9,671	9,463	9,642	
Month	309,039	282,324	310,434	298,170	313,317	298,860	299,057	170,996	281,340	299,801	283,890	298,902	3,446,230
Bristow district—													
Daily average	6,640	6,860	7,097	6,413	6,986	6,814	6,143	3,717	6,786	6,770	7,424	7,410	
Month	205,840	192,080	220,007	192,390	216,566	204,420	190,433	115,227	203,580	209,870	222,720	229,710	2,402,743
Manford and Olive—													
Daily average	1,975	2,063	2,196	2,088	2,075	2,060	1,998	1,234	2,035	1,792	1,774	1,762	
Month	61,225	57,764	68,076	62,640	64,325	61,800	61,938	38,254	61,050	55,552	53,220	54,622	700,466
Mounds—													
Daily average	299	317	281	251	271	267	248	133	265	251	233	247	
Month	9,269	8,876	8,711	7,530	8,401	8,010	7,688	4,123	7,950	7,781	6,990	7,657	92,986
Wilcox—													
Daily average	477	486	489	499	517	492	588	311	599	594	615	596	
Month	14,787	13,608	15,159	14,970	16,027	14,760	18,228	9,641	17,970	18,414	18,450	18,476	190,490
Independent—													
Daily average	650	688	690	643	670	666	488	220	367	373	377	362	
Month	20,150	19,264	21,390	19,290	20,770	19,980	15,128	6,820	11,010	11,563	11,310	11,222	187,897
Miscellaneous—													
Daily average	238	279	569	272	198	204	496	342	270	633	749	719	
Month	7,378	7,812	17,639	8,160	6,138	6,120	15,376	10,602	8,100	19,623	22,470	22,289	151,707
PAWNEE AND PAYNE COUNTIES:													
Yale district, Maramec, and Jennings—													
Daily average	3,833	3,428	3,936	3,914	3,827	3,844	3,543	2,006	3,023	3,529	2,908	3,502	
Month	118,823	95,984	122,016	117,420	118,637	115,320	109,833	62,186	90,690	109,399	87,240	108,562	1,256,110
Ramsey—													
Daily average	2,627	3,004	3,504	3,677	4,270	4,518	4,941	2,554	4,538	4,937	5,230	5,091	
Month	81,437	84,112	108,624	110,310	132,370	135,540	153,171	79,174	136,140	153,047	156,900	157,821	1,488,646
Ripley and Mehan—													
Daily average	198	173	178	181	181	179	159	96	172	157	141	149	
Month	6,138	4,844	5,518	5,430	5,611	5,370	4,929	2,976	5,160	4,867	4,230	4,619	59,692
Watchorn—													
Daily average	306	325	301	302	289	292	319	159	303	296	299	292	
Month	9,486	9,100	9,331	9,060	8,959	8,760	9,889	4,929	9,090	9,176	8,970	9,052	105,802
Cleveland and Keystone—													
Daily average	873	877	947	1,107	1,098	1,062	1,220	704	1,136	1,207	1,112	1,117	
Month	27,063	24,556	29,357	33,210	34,038	31,860	37,820	21,824	34,080	37,417	33,360	34,627	379,212
Stillwater—													
Daily average	133	107	133	99	87	86	68	24	80	53	42	46	
Month	4,123	2,996	4,123	2,970	2,697	2,580	2,108	744	2,400	1,643	1,260	1,426	29,070
Lauderdale—													
Daily average	872	858	925	930	951	944	964	477	912	947	894	902	
Month	27,032	24,024	28,675	27,900	29,481	28,320	29,884	14,787	27,360	29,357	26,820	27,962	321,602
Coyle—													
Daily average	418	443	430	654	913	952	1,150	707	1,093	1,880	2,000	1,991	
Month	12,958	12,404	13,330	19,620	28,303	28,560	35,650	21,917	32,790	58,280	60,000	61,721	385,533
Norfolk and West Norfolk—													
Daily average	431	411	436	432	423	419	411	226	296	310	309	300	
Month	13,361	11,508	13,516	12,960	13,113	12,570	12,741	7,006	8,880	9,610	9,270	9,300	133,835
Miscellaneous—													
Daily average	388	282	299	296	292	291	361	344	437	428	279	311	
Month	12,028	7,896	9,269	8,880	9,052	8,730	11,191	10,664	13,110	13,268	8,370	9,641	122,099
Garr—													
Daily average	.....	.....	.....	.....	.....	.....	.....	216	402	365	366	358	
Month	.....	.....	.....	.....	.....	.....	.....	6,696	12,060	11,315	10,980	11,098	52,149
OKLAHOMA COUNTY:													
Oklahoma City—													
Daily average	98,094	117,776	108,950	103,243	103,105	100,730	99,629	60,229	77,299	97,608	104,864	104,849	
Month	3,040,914	3,297,728	3,377,450	3,097,290	3,196,255	3,021,900	3,088,499	1,867,099	2,318,970	3,025,848	3,145,920	3,250,319	35,728,192
Edmond—													
Daily average	4,774	4,718	5,408	4,940	5,646	5,002	4,512	2,699	4,115	4,197	4,576	4,512	
Month	147,994	132,104	167,648	148,200	175,026	150,060	139,872	83,669	123,450	130,107	137,280	139,872	1,675,282
Britton-South Britton—													
Daily average	740	684	671	818	777	781	678	320	757	786	777	760	
Month	22,940	19,152	20,801	24,540	24,087	23,430	21,018	9,920	22,710	24,366	23,310	23,560	259,839
Miscellaneous—													
Daily average	152	199	200	17	33	29	38	.....	144	99	125	115	
Month	4,712	5,572	6,200	510	1,023	870	1,179	.....	4,320	3,069	3,750	3,565	34,769

(Continued on Page 114)





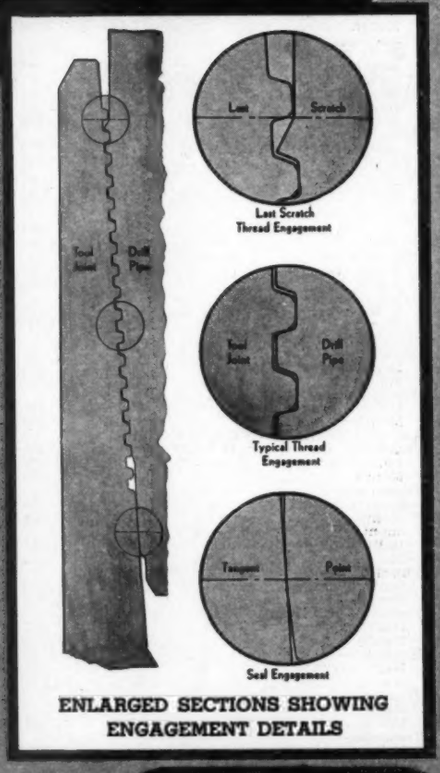
SHRINK THREAD TOOL JOINTS



POSITIVE ASSURANCE AGAINST LAST ENGAGED THREAD FAILURE-LEAKAGE AND WASHOUTS....

Plus...

SIMPLE AND ACCURATE FIELD RENEWAL WHICH ENTIRELY ELIMINATES WELDING HAZARDS AND THE POSSIBILITY OF GALLED THREADS



ENLARGED SECTIONS SHOWING ENGAGEMENT DETAILS

ONAL SUPPLY COMPANY

DIVISION OFFICES
FT. WORTH, TEXAS
TULSA, OKLA.
TORRANCE, CALIF.

extended by one or two locations several times. The Wilzetta area in southeastern Lincoln County was extended, and there were scattered operations elsewhere in the county. Lincoln completions totaled 89, a gain of 4 over 1938, the year in which the big development at Sac and Fox got under way.

Payne County Busy

Payne County contributed largely to the state gain, registering 63 completions against 30 in the preceding year. Completion of big producers in the Ramsey pool —the outstanding discovery of 1938—frequently featured Oklahoma field reports. The pool was extended on the east and north sides beyond the original community block, but the outside producers generally were smaller than those on the block. Several locations remain to be drilled on the block, and it is probable that some more producers will be completed on locations offsetting the block before Ramsey development is concluded. The Coyle pool, another 1938 discovery, was the next important development in Payne County. Coyle activity was slow getting under way, but several fairly large wells were completed in Wilcox sand and at midyear discovery of production in Hunton lime assured additional activity after the Wilcox zone is fully explored. The pool was extended to the south and east and was defined on the north end. Several Payne County outposts, seeking extensions of the Ramsey and Coyle trends, were drilled without success.

Seminole and Pontotoc continued among the more active counties, although both registered declines in the number of completed wells. Seminole completions dropped from 211 in 1938 to 184 last year; Pontotoc from 145 2 years ago to 122 last year. Decline of the Fitts field, both in operations and in production, resulting from water encroachment, was outstanding in Pontotoc County. Some new productive areas were opened in the two counties, and some of the old areas were extended.

Wildcat exploration was accelerated in the last half of the year, with the result that total outpost wells drilled showed a gain over 1938 but the percentage of discoveries declined, as shown by accompanying tables. A score of new productive areas of more or less importance were discovered, the remaining wildcat producers that were completed being classed as pool extensioners.

Wildcat operators had to drill deeper on the average to find new production than was the case in 1938, but the average depth of dry wildcat holes declined. Oil and gas discovery wells completed the past year averaged 4,285 ft., against an average of 3,606 ft. for the discoveries of 1938. The average depth of 1939 dry holes was 3,574 ft., compared with an average of 3,686

OKLAHOMA (Continued)

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
LINCOLN COUNTY:													
Sac and Fox—													
Daily average	2,955	3,526	3,971	3,711	3,493	3,712	2,801	1,399	3,172	2,604	2,689	2,660	
Month	91,605	98,728	123,101	111,330	108,283	111,360	86,831	43,369	95,160	80,724	80,670	82,460	1,113,621
Peck—													
Daily average	175	150	149	174	180	176	163	162	159	158	144	149	
Month	5,425	4,200	4,619	5,220	5,580	5,280	5,053	5,022	4,770	4,898	4,320	4,619	59,006
Chandler and Hoyt—													
Daily average	1,741	1,636	1,660	1,610	1,556	1,562	1,390	770	1,268	1,423	1,247	1,306	
Month	53,971	45,808	51,460	48,300	48,236	46,860	43,090	23,870	38,040	44,113	37,410	40,486	521,644
Stroud and Skellyville—													
Daily average	436	436	447	466	522	511	483	281	314	414	406	402	
Month	13,516	12,208	13,857	13,980	16,182	15,330	14,973	8,711	9,420	12,834	12,180	12,462	155,653
Wilzetta and South Wilzetta—													
Daily average	403	387	427	472	485	476	446	312	505	547	641	623	
Month	12,493	10,836	13,237	14,160	15,035	14,280	13,826	9,672	15,150	16,957	19,230	19,313	174,189
Lafoon—													
Daily average	622	502	588	573	566	582	638	682	650	630	548	562	
Month	19,282	14,056	18,228	17,190	17,546	17,460	19,778	21,142	19,500	19,530	16,440	17,422	217,574
Sporn—													
Daily average	436	438	395	337	299	291	263	136	233	242	206	208	
Month	13,516	12,264	12,245	10,110	9,269	8,730	8,153	4,216	6,990	7,502	6,180	6,448	105,623
Wellston—													
Daily average	848	790	734	742	740	733	592	305	491	550	535	514	
Month	26,288	22,120	22,754	22,260	22,940	21,990	18,352	9,455	14,730	17,050	16,050	15,934	229,923
Davenport—													
Daily average	466	524	487	476	503	497	487	244	483	476	461	437	
Month	14,446	14,672	15,097	14,280	15,593	14,910	15,097	7,564	14,490	14,756	13,830	13,547	168,282
Miscellaneous—													
Daily average	118	203	177	187	191	193	192	98	118	181	172	160	
Month	3,658	5,684	5,487	5,610	5,921	5,790	5,952	3,038	3,540	5,611	5,160	4,960	60,411
STEPHENS AND COTTON COUNTIES:													
Duncan district—													
Daily average	2,439	2,221	2,633	2,416	2,470	2,452	2,272	1,583	2,690	2,767	2,845	2,812	
Month	75,609	62,188	81,623	72,480	76,570	73,560	70,432	49,073	80,700	85,777	85,350	87,172	900,534
Loco-Milroy—													
Daily average	623	659	623	593	603	596	543	323	467	486	442	462	
Month	19,313	18,452	19,313	17,790	18,693	17,880	16,833	10,013	14,010	15,066	13,260	14,322	194,945
Velma—													
Daily average	778	674	864	835	878	871	783	459	845	790	760	754	
Month	24,118	18,872	26,784	25,050	27,218	26,130	24,273	14,229	25,350	24,490	22,800	23,374	282,688
Walters—													
Daily average	1,021	1,007	1,059	1,003	971	992	1,019	644	929	986	992	963	
Month	31,651	28,196	32,829	30,090	30,101	29,760	31,589	19,964	27,870	30,566	29,760	29,853	352,229
Comanche—													
Daily average	657	605	674	559	687	664	599	419	608	603	597	581	
Month	20,367	16,940	20,894	16,770	21,297	19,920	18,569	12,989	18,240	18,693	17,910	18,011	270,600
Miscellaneous—													
Daily average	194	168	168	217	213	217	156	87	169	144	149	147	
Month	6,014	4,704	5,208	6,510	6,603	6,510	4,836	2,697	5,070	4,464	4,470	4,557	61,643
CLEVELAND COUNTY:													
Moore—													
Daily average	3,627	3,606	3,412	2,792	2,868	2,836	2,902	1,535	2,356	2,520	2,277	2,219	
Month	112,437	100,968	105,772	83,760	88,908	85,080	89,962	47,585	70,680	78,120	68,310	68,789	1,000,371
Miscellaneous—													
Daily average	137	110	.....	.....	39	41	11	.....	.....	.....	73	.....	
Month	4,247	3,080	.....	.....	1,209	1,230	341	.....	.....	.....	2,190	.....	12,297
KAY, GRANT, AND NOBLE COUNTIES:													
Blackwell, Deer Creek, Otstot, Caldwell, and Webb—													
Daily average	1,119	1,208	1,127	818	801	803	689	330	769	688	888	836	
Month	34,689	33,824	34,937	24,540	24,831	24,090	21,359	10,230	23,070	21,328	26,640	25,916	305,454
Dilworth—													
Daily average	439	438	404	444	450	447	442	233	429	490	482	472	
Month	13,609	12,264	12,524	13,320	13,950	13,410	13,702	7,223	12,870	15,190	14,460	14,632	157,154
Lamont—													
Daily average	384	404	382	379	393	388	341	196	285	377	375	381	
Month	11,904	11,312	11,842	11,370	12,183	11,640	10,571	6,076	8,550	11,687	11,250	11,811	130,196
Ponca City—													
Daily average	225	210	224	208	248	239	221	160	231	218	221	216	
Month	6,975	5,880	6,944	6,240	7,688	7,170	6,851	4,960	6,930	6,758	6,630	6,696	79,722
Braman-North Braman-Southeast Braman—													
Daily average	1,697	1,697	1,604	1,568	1,661	1,649	1,575	652	1,479	1,381	1,284	1,315	
Month	52,607	47,516	49,724	47,040	51,491	49,470	48,825	20,212	44,370	42,811	38,520	40,765	533,351
Hubbard—													
Daily average	535	572	564	550	571	566	564	268	487	510	542	531	
Month	16,585	16,016	17,484	16,500	17,701	16,980	17,484	8,308	14,610	15,810	16,260	16,461	190,199
Thomas—													
Daily average	201	210	244	222	208	217	243	113	254	251	225	233	
Month	6,231	5,880	7,564	6,660	6,448	6,510	7,533	3,503	7,620	7,781	6,750	7,223	79,703
Tonkawa—													
Daily average	1,976	1,975	1,998	2,009	2,050	2,044	1,988	965	1,902	1,912	1,753	1,746	
Month	61,256	55,300	61,938	60,270	63,550	61,320	61,628	29,915	57,060	59,272	52,590	54,126	678,225
Billings—													
Daily average	5,331	5,345	6,590	6,665	6,797	6,710	6,383	3,322	5,077	6,322	6,538	6,510	
Month	165,261	149,660	204,290	199,950	210,707	201,300	197,873	102,982	152,310	195,982	196,140	201,810	2,178,265
Lucien—													
Daily average	8,240	8,132	9,591	9,683	9,606	9,582	8,356	4,239	7,240	7,856	8,524	8,206	
Month	255,440	227,696	297,321	290,490	297,786	287,460	259,036	131,409	217,200	243,536	255,720	263,686	3,017,480
North Lucien—													
Daily average	644	719	878	836	770	777	654	251	709	681	684	690	
Month	19,964	20,132	27,218	25,080	23,870	23,310	20,274	7,781	21,270	21,111	20,520	21,390	251,920
Vernon—													
Daily average	323	287	285	289	273	264	274	131	286	242	266	257	
Month	10,013	8,036	8,835	8,670	8,463	7,920	8,494	4,061	8,580	7,502	7,980	7,967	96,521
Polo—													
Daily average	1,222	1,331	1,410	1,402	1,372	1,381	1,187	608	910	1,027	1,128	1,093	
Month	37,882	37,268	43,710	42,060	42,532	41,430	36,797	18,848	27,300	31,837	33,840	33,883	427,387
Miscellaneous—													
Daily average	314	299	318	341	190	210	186	109	381	212	275	264	
Month	9,734	8,372	9,858	10,230	5,890	6,300	5,766	3,379	11,430	6,572	8,250	8,184	93,965

(Continued on Page 119)

ft. the preceding year. The dry hole average depth for the past year does not include the Continental Oil Co.'s wildcat in Washita County.

Deepest Oklahoma Test

The wildcat in Washita County set a new depth record for Oklahoma and ranks as the second deepest test ever drilled. It was bottomed at 14,582 ft., where drilling was stopped by failure to recover drill pipe lost in the hole. Although operations were suspended late in December, it was not officially listed as an abandonment until after the turn of the year so it does not show as a completion in the 1939 tabulation.

Wildcat operations were carried on in more than 50 of the state's 77 counties, with wildcat completions being registered in 49 counties. These extended from the Arkansas line to the Texas Panhandle, from Kansas on the north to the Red River on the south. Several of the wildcats were deep tests drilled in western Oklahoma. Numerous shallow wildcats were drilled in Comanche, Cotton and Kiowa counties in southwestern Oklahoma, and in the older productive counties on the east side of the state.

The outstanding wildcat strike of the year, perhaps, was that made late in May by Gled Oil Co. and Russell S. Tarr at No. 1 Watkins, Section 20-7-17w, opening the Hobart pool in Kiowa County. It found production in Viola lime at 1,049-55 ft., total depth, and was completed for an estimated 2,000 bbl. of oil daily. Many oil men were skeptical of the discovery at first, but subsequent developments including completion of a well larger than the discovery have caused many of them to readjust their opinion of the new area. Trend of production and size of the pool are yet to be determined.

Another interesting southwestern Oklahoma discovery was completed at Phillips Petroleum Co.'s No. 1 Culbertson, Section 4-1n-5w, opening the West Doyle pool in Stephens County. It was completed for daily potential of 1,071 bbl. of oil in Deese sand at total depth of 5,620 ft., plugged back to 5,616 ft. No other producer has been completed in the pool.

Among the more important discoveries in the Pottawatomie-Seminole-Pontotoc county sector was the North Bebee pool, opened in July by Culver & Shepherd in Sections 3 and 10-5-5, and straddling the Seminole-Pottawatomie County line. Production was from lime and sand, and at the end of the year several fair-sized wells had been completed. Comparable with this discovery is the Sacred Heart pool, opened in Section 19-6-5, Pottawatomie County, a June strike of the Alma Oil Co. Production is from Earlsboro sand.

New Pay at Milroy

Two discoveries that may prove of considerable importance were registered late in the year. Carter Oil Co. uncovered Hunton lime production in the old Milroy field, Stephens County, in December, when its deep discovery well was plugged back to the shallower zone after the deep pay had been exhausted. Originally bottomed at 8,157 ft. and the only producer completed in the deep pay, it was recompleted in Hunton lime at 4,875 ft. for initial yield of 2,067 bbl. of oil.

The other year-end strike was made by Patsy Oil Co., opening the Chism pool in Section 16-5-3e, and adding McClain to the list of Oklahoma oil counties. It found production in Viola lime at 3,490-3,623 ft., total depth, and had initial flow of 1,000 bbl. of 37.6-gravity oil in 22 hours, with 1,000,000 cu. ft. of gas and no water. Offset wells were being drilled as the new year came in.

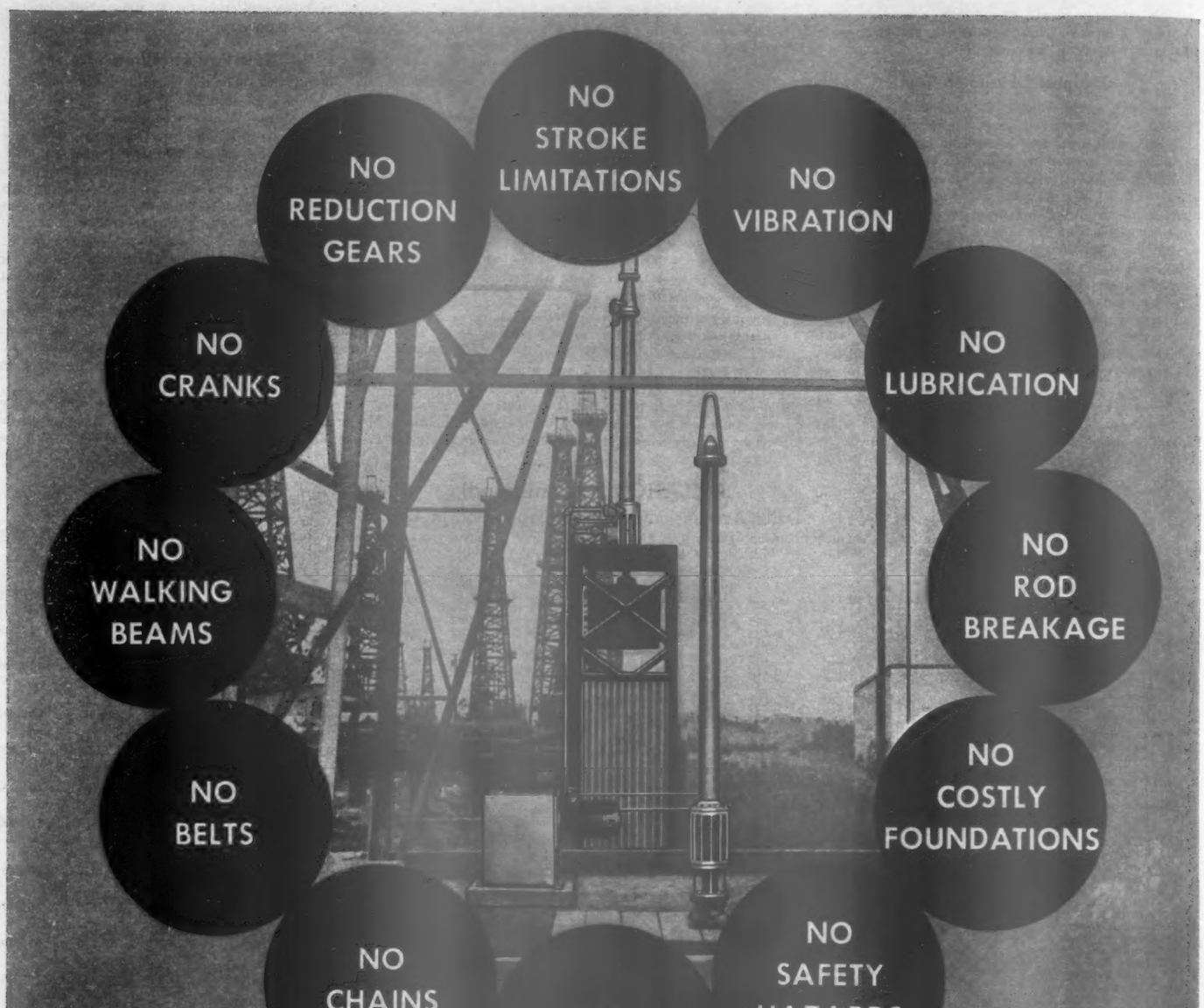
Data on additional discoveries of 1939 are given in tabular form.

Faced with a declining total reserve and possible loss of market, Oklahoma operators are expected to increase their search for new reserves in 1940. With the

OKLAHOMA (Continued)

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
GARFIELD COUNTY:													
Garber—													
Daily average	1,737	1,766	1,943	1,862	1,986	1,942	1,835	1,085	1,726	1,869	1,997	1,886	
Month	53,847	49,448	60,233	55,860	61,566	58,260	56,885	33,635	51,780	57,939	59,910	58,466	657,829
Miscellaneous—													
Daily average	180	121	83	110	135	126	202	132	162	197	231	202	
Month	5,580	3,388	2,573	3,300	4,185	3,780	6,262	4,092	4,860	6,107	6,930	6,262	57,319
Hillsdale—													
Daily average	199	222	152	254	126	165	72	49	71	62	59	60	
Month	6,169	6,216	4,712	7,620	3,906	4,950	2,232	1,519	2,130	1,922	1,770	1,860	45,006
LOGAN COUNTY:													
Crescent—													
Daily average	3,367	3,278	3,151	3,065	3,118	3,147	2,645	1,614	2,206	2,114	2,324	2,339	
Month	104,377	91,784	97,681	91,950	96,658	94,410	81,995	50,034	66,180	65,534	69,720	72,509	982,832
Langston—													
Daily average	276	390	300	267	299	283	327	210	327	671	422	418	
Month	8,556	10,920	9,300	8,010	9,269	8,490	10,137	6,510	9,810	20,801	12,660	12,958	127,421
Marshall-Lovell-Seward—													
Daily average	303	338	374	378	363	361	359	184	318	372	324	316	
Month	9,393	9,464	11,594	11,340	11,253	10,830	11,129	5,704	9,540	11,532	9,720	9,796	121,295
Meridian and miscellaneous—													
Daily average	187	151	139	263	315	297	417	224	289	391	437	407	
Month	5,797	4,228	4,309	7,890	9,765	8,910	12,927	6,944	8,670	12,121	13,110	12,617	107,288
CARTER COUNTY:													
Healdton—													
Daily average	8,958	9,077	9,517	9,109	9,164	9,156	9,320	4,713	9,823	9,474	8,984	9,182	
Month	277,698	254,156	295,027	273,270	284,084	274,680	288,920	146,103	294,690	293,694	269,520	284,642	3,236,484
Hewitt—													
Daily average	3,675	3,606	3,969	3,871	4,043	3,953	3,890	2,192	3,884	3,954	3,838	3,907	
Month	113,925	100,968	123,039	116,130	125,333	118,590	120,590	67,952	116,520	122,574	115,140	121,117	1,361,878
Sholem-Alechem—													
Daily average	2,339	2,314	2,895	2,257	2,810	2,574	2,713	1,959	2,617	2,759	2,920	2,843	
Month	72,509	64,792	89,745	67,710	87,110	27,220	84,103	60,729	78,510	85,529	87,600	88,133	943,690
Wildcat Jim—													
Daily average	846	828	667	447	449	462	460	242	465	452	456	451	
Month	26,226	23,184	20,677	13,410	13,919	13,860	14,260	7,502	13,950	14,012	13,680	13,981	188,661
Tussey—													
Daily average	516	484	421	416	435	429	419	86	776	397	50	385	
Month	15,996	13,552	13,051	12,480	13,485	12,870	12,989	2,666	23,280	12,307	1,500	11,935	146,111
Tatums—													
Daily average	1,163	1,366	1,725	979	1,645	1,611	1,527	1,612	2,130	2,036	2,108	2,111	
Month	36,053	38,248	53,475	29,370	50,995	48,330	47,337	49,972	63,900	63,116	63,240	65,441	609,477
Graham-Fox-Ed Cox—													
Daily average	3,435	3,286	3,529	3,499	3,234	3,262	3,139	1,461	2,588	2,559	2,209	2,236	
Month	106,485	92,008	109,399	104,970	100,254	97,860	97,309	45,291	77,640	79,329	66,270	69,316	1,046,131
Brock—													
Daily average	235	245	270	228	232	227	224	117	279	237	225	221	
Month	7,285	6,860	8,370	6,840	7,192	6,810	6,944	3,627	8,370	7,347	6,750	6,851	83,246
Miscellaneous—													
Daily average	201	235	8	13	18	20	10	29	130	38	13	18	
Month	6,231	6,580	248	390	558	600	310	899	3,900	1,178	390	558	21,842
KIOWA COUNTY:													
Daily average	.....	.....	.....	.....	93	102	.....	14	135	412	433	438	
Month	.....	.....	.....	.....	2,883	3,060	.....	434	4,050	12,772	12,990	13,578	49,767
COAL COUNTY:													
Daily average	438	458	483	598	675	639	542	356	493	445	538	392	
Month	13,578	12,824	14,973	17,940	20,925	19,170	16,802	11,036	14,790	13,795	16,140	12,152	184,075
LOVE COUNTY:													
Daily average	33	39	41	35	.....	.....	36	.....	35	.....	32	.....	
Month	1,023	1,092	1,271	1,050	.....	.....	1,116	.....	1,050	.....	960	.....	7,562
JEFFERSON COUNTY:													
Daily average	1,214	1,205	807	1,290	1,252	1,263	1,210	885	664	1,353	1,969	1,882	
Month	37,634	33,740	25,017	38,700	38,812	37,890	37,510	27,435	19,920	41,943	59,070	58,342	456,013
GARVIN COUNTY:													
Daily average	1,098	1,150	1,175	1,006	1,109	1,087	1,029	617	978	1,054	1,030	1,041	
Month	34,038	32,200	36,425	30,180	34,379	32,610	31,899	19,127	29,340	32,674	30,900	32,271	376,043
GRADY COUNTY:													
Daily average	1,823	1,659	1,830	1,544	1,809	1,794	1,702	1,029	1,603	1,592	1,634	1,588	
Month	56,513	46,452	56,730	46,320	56,079	53,820	52,762	31,899	48,090	49,352	49,020	49,228	596,265
MARSHALL COUNTY:													
Daily average	150	132	156	157	165	161	163	87	120	124	152	149	
Month	4,650	3,696	4,836	4,710	5,115	4,830	5,053	2,697	3,600	3,844	4,560	4,619	52,210
TILLMAN COUNTY:													
Daily average	1,379	1,418	1,367	1,427	1,461	1,457	1,350	694	1,381	1,440	1,485	1,463	
Month	42,749	39,704	43,377	42,810	45,291	43,710	41,850	21,514	41,430	44,640	44,550	45,353	495,978
JACKSON COUNTY:													
Daily average	1,107	1,178	1,285	1,241	1,476	1,416	1,710	1,114	2,294	2,035	2,080	2,060	
Month	34,317	32,984	39,835	37,230	45,756	42,480	53,010	34,534	68,820	63,085	62,400	63,860	578,311
CADDO COUNTY:													
Daily average	4,251	3,766	4,827	4,787	5,032	4,982	5,214	3,600	5,187	6,678	5,702	5,904	
Month	131,781	105,448	149,637	143,610	155,992	149,460	161,634	111,600	155,610	207,018	171,060	183,024	1,825,874
COMANCHE COUNTY:													
Daily average	8	8	7	4	6	6	7	5	7	4	5	5	
Month	248	224	217	120	186	180	217	155	210	124	150	155	2,186
Daily average	433,882	456,095	461,589	449,848	460,935	452,401	422,778	246,761	385,074	515,250	436,308	427,653	420,312
Total 1939	13,450,342	12,770,660	14,309,259	13,495,440	14,288,985	13,572,030	13,106,118	7,649,591	11,552,220	12,872,750	13,089,240	13,257,243	153,413,878
Total 1938	16,664,475	14,342,492	15,700,911	14,612,070	13,700,078	12,723,000	13,965,562	14,250,055	13,609,200	13,565,259	12,890,160	12,183,934	169,307,196
Total 1937	17,915,954	16,891,224	19,678,955	19,922,970	20,004,982	19,206,870	19,603,718	19,465,892	17,807,580	18,075,325	17,005,050	17,528,268	223,106,788
Total 1936	15,236,345	14,774,717	16,459,543	16,730,460	17,371,532	16,799,250	16,854,359	17,728,983	16,759,620	17,459,913	16,743,240	17,962,733	200,880,705
Total 1935	14,978,642	13,717,900	15,456,786	15,400,050	16,071,051	15,728,730	16,048,080	14,940,636	14,418,870	15,529,915	15,224,280	15,081,934	182,596,874



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HYDRAULIC EQUIPMENT ENGINEERS SINCE 1921

possible exception of the Ramsey pool and one or two rich areas of small size, no major discovery has been recorded in the state since the opening of the Fitts field in Pontotoc County. Many oil men believe that some large fields will be opened in western Oklahoma, particularly in the Anadarko basin, but the pay zones in that part of the state generally are expected at deep levels. That, naturally, will retard exploration so long as many of the major operators are busy in the shallower fields of Illinois. Some of the major companies who are not interested in Illinois and are not too busy in other states may explore for deep production in western Oklahoma, and a few of the more daring independent operators may drill some deep wildcats in the plains country. Once the big pool that many geologists predict is found out there, that sector of the state will become increasingly active. Until such a strike is made, however, no great drilling campaign may be predicted.

Barring some major discovery that would inaugurate an intensive drilling campaign reminiscent of Oklahoma City, Seminole, etc., principal drilling activity in 1940 may be expected to continue in the districts that were most active in 1939. It is probable the search for new pools along the Nemaha ridge in the central and north central counties will be intensified, and considerable exploration in southern counties may be expected. An important strike anywhere would add to the increase in field activity that is expected this year.

OKLAHOMA

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas
Alfalfa	1	0	1	0
Atoka	1	0	1	0
Beckham	7	0	1	6
Caddo	51	22,309	9	6
Carter	41	1,737	11	1
Canadian	1	0	1	0
Cherokee	2	0	2	0
Choctaw	1	0	1	0
Cleveland	8	389	6	0
Coal	3	1,249	2	0
Comanche	25	72	14	0
Cotton	14	0	14	0
Creek	206	10,067	69	16
Ellis	1	0	1	0
Garfield	20	453	10	0
Garvin	2	0	2	0
Grady	15	425	8	3
Grant	2	0	2	0
Greer	2	0	2	0
Harmon	1	0	1	0
Harper	1	0	1	0
Haskell	1	0	0	1
Hughes	22	2,516	12	3
Jackson	72	3,443	18	1
Jefferson	6	25	4	0
Kay	15	71	13	0
Kingfisher	5	0	4	1
Kiowa	16	1,151	12	0
Le Flore	1	0	1	0
Lincoln	89	12,332	13	1
Logan	15	1,640	6	3
Love	2	0	2	0
Marshall	3	11	2	0
Mayes	1	0	1	0
McClain	1	0	1	0
McIntosh	4	0	2	2
Murray	3	0	3	0
Muskogee	31	171	21	3
Noble	7	5,812	2	0
Okfuskee	57	3,179	24	5
Oklahoma	34	3,946	11	2
Okmulgee	66	427	28	11
Osage	77	3,147	26	3
Pawnee	41	2,893	17	1
Payne	63	27,784	13	3
Pittsburg	3	0	3	0
Pontotoc	122	15,957	34	5
Pottawatomie	269	59,659	44	0
Rogers	1	0	1	0
Sequoyah	1	0	1	0
Seminole	184	21,541	65	12
Stephens	75	1,866	25	10
Texas	1	0	0	1
Tillman	10	980	5	0
Tulsa	34	58	16	8
Wagoner	24	57	14	5
Total 1939	1,761	205,367	603	113

Completions by Months

Month—	Comp	Prod	Dry	Gas
January	106	7,935	45	7
February	130	13,049	47	7
March	167	23,121	52	9
April	142	27,003	43	11
May	150	20,385	42	11
June	205	24,672	50	17
July	182	18,073	69	11
August	164	13,210	63	15
September	106	14,868	29	4
October	119	14,059	46	5
November	170	17,731	66	9
December	120	11,261	51	7
Total 1939	1,761	205,367	603	113
Total 1938	1,654	214,978	545	123
Difference	107	9,611	58	10
Total 1937	2,672	677,156	697	123
Total 1936	2,565	1,264,939	649	126
Total 1935	2,010	1,164,182	579	110
Total 1934	1,717	673,875	465	91
Total 1933	1,093	307,323	353	72
Total 1932	1,130	647,316	381	106
Total 1931	1,058	1,941,805	374	186
Total 1930	3,466	5,628,234	1,002	403

RESULTS OF WILDCAT DRILLING

County—	Oil and gas wells	Dry holes	Average depth of dry holes
Alfalfa	0	1	5,790
Atoka	0	1	518
Beckham	0	1	2,017
Canadian	0	1	9,611
Carter	1	0	0
Cleveland	1	4	7,451
Choctaw	0	1	1,181
Coal	0	1	5,381
Comanche	0	6	2,532
Cotton	0	8	1,540
Creek	3 (1 gas)	3	2,795
Ellis	0	1	730
Garfield	2	6	5,710
Garvin	1 (gas)	2	3,669
Grady	1 (gas)	3	3,565
Grant	0	2	5,854
Greer	0	2	1,422
Harmon	0	1	2,802
Harper	0	1	7,420
Hughes	1	8	4,078
Jackson	0	2	1,422
Jefferson	1	1	4,986
Kay	0	6	3,099
Kingfisher	1 (gas)	4	5,669
Kiowa	1	10	1,338
Le Flore	0	1	2,250
Lincoln	1	9	4,100
Logan	0	2	5,209
Love	0	1	3,012
Marshall	0	1	7,110
McClain	0	1	5,697
McIntosh	1 (gas)	1	3,540
Murray	0	1	2,505
Muskogee	0	3	1,475
Noble	0	2	4,898
Okfuskee	1	5	2,963
Oklahoma	2	2	6,576
Okmulgee	0	1	2,657
Osage	1	1	1,294
Pawnee	0	2	3,455
Payne	1 (gas)	7	4,403
Pittsburg	0	3	3,357
Pontotoc	1	8	1,985
Pottawatomie	6	10	4,945
Sequoyah	0	1	1,912
Seminole	5	11	3,804
Stephens	1	1	2,021
Tillman	0	5	3,441
Wagoner	0	1	738
Total	33	156	
Average depth of oil and gas wells, feet			4,285
Average depth of dry holes, feet			3,574
Percentage of oil wells			14.29
Percentage of gas wells			3.17
Percentage of dry holes			82.54

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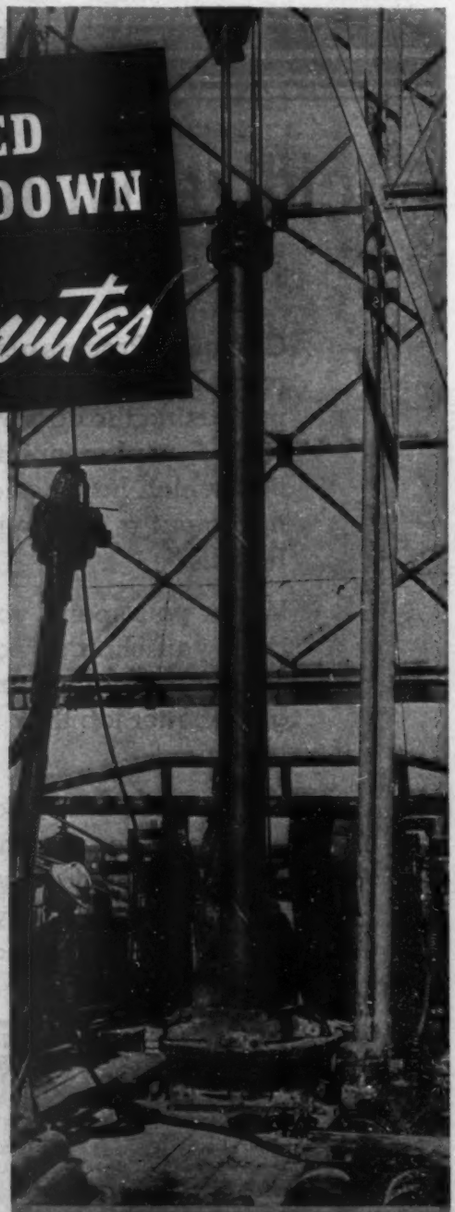

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Despite Proration Canada Established Another High

By VICTOR LAURISTON

IN spite of proration measures in the Turner Valley field, Canadian petroleum production in 1939 established another new high. Official figures, with December production estimated, show a total output for all Canadian fields of 7,743,313 bbl., compared with the previous all-time high of 6,946,479 bbl. for 1938.

The comparative figures for the various Canadian provinces are:

	Barrels	
	1938	*1939
New Brunswick	23,081	18,800
Ontario	171,359	207,500
Alberta	6,742,039	7,500,000
Northwest Territories	10,000	17,013
Total	6,946,479	7,743,313

*December estimated.

Natural-Gas Production

In natural-gas production the total for 1939 is estimated at 35,187,600,000 cu. ft., compared with 33,351,000,000 cu. ft. for 1938. This represents gas commercially used or marketed, and does not include Turner Valley residual gas burned in flares. The four major gas-producing provinces all showed increases over 1938, with detailed figures as follows:

	Cubic feet	
	1938	1939
New Brunswick	583,000,000	610,500,000
Ontario	10,740,000,000	11,700,000,000
Alberta	21,937,400,000	22,775,000,000
Manitoba	600,000	600,000
Saskatchewan	90,000,000	100,000,000
Total	33,351,000,000	35,187,600,000

Figures for December 1939 are estimated and subject to revision.

Alberta Fields

In Alberta, the Turner Valley field, though under proration, steadily increased its crude production. While most of the outlying small pools showed declines, particularly marked in the new Taber field, some production was secured from new wells in the Del Bonita area in southern Alberta, and in the Steveville and Lloydminster fields in the eastern part of the province. With December figures estimated, Alberta fields in 1938 and 1939 compare as follows:

	Barrels	
	1938	1939
Turner Valley limestone crude	6,681,883	7,091,380
Turner Valley naphtha	(*)	362,409
Turner Valley shallow crude	9,192	8,408
Red Coulee light crude	14,458	12,920
Wainwright heavy crude	12,985	11,172
Dina-Ribstone heavy crude	5,359	4,317
Moose dome light crude	3,064	2,074
Taber medium crude	15,098	3,720
Steveville light crude	.....	687
Lloydminster heavy crude	.....	548
Del Bonita light crude	.....	2,365
Total	6,742,039	7,500,000

*Turner Valley limestone crude and Turner Valley naphtha combined in 1938.

Turner Valley pipe-line runs to the Imperial and British American companies at Calgary reached new high figures; the expansion of refinery facilities permitting a somewhat larger consumption of crude. The actual pipe-line runs for 1938 and 1939 are:

	Barrels	
Month—	1938	1939
January	381,571	415,589
February	374,798	332,344
March	411,875	373,003
April	410,151	527,216
May	465,840	620,720
June	460,847	699,706
July	593,147	816,625
August	692,407	721,881
September	769,574	658,399
October	627,689	704,460
November	378,479	*630,360
December	420,964	*345,629
Total	5,987,342	6,845,932

*Unofficial estimates.

Throughout the year, the Alberta Conservation Board continued the proration of Turner Valley crude, aggregate allowables for the crude producers being adjusted from time to time to the seasonal demand. While the allowables permitted an increased output, completion of new producers resulted in a general reduction of individual quotas.

On January 1, 1939, the allowables for some 70 crude wells was 12,500 bbl. a day. Subsequent changes were: February 1, 10,000 bbl.; April 1, 17,500 bbl.; April 28, 19,500 bbl.; May 13, 22,500 bbl.; May 19, 25,000 bbl.; June 13, 27,000 bbl.; July 28, 22,000 bbl.; September 19, 23,000 bbl.; October 11, 26,000 bbl.; November 12, 20,000 bbl.; December 2, 14,500 bbl.; December 22, 12,000 bbl.

At the end of 1938 there were 70 wells listed as crude producers. In 1939, some 35 wells were completed, but during the year several were transferred to the listing of gas wells. The year ended with 92 crude producers and 7 wells on test. In addition 71 wells were listed as gas-naphtha producers.

During the year the Alberta Conservation Board imposed gradually increasing restrictions on gas production, with a view to eliminating waste and conserving gas pressure for the production of crude.

At the end of 1939 the restricted crude potential of the field was estimated at 64,791 bbl. daily, this not including a number of wells under official test.

Turner Valley Operations

Outstanding features of Turner Valley drilling operations in 1939 were the delimitation of the original southern crude area by deep drilling to the west; the proving of important production north and west of the original North Turner Valley naphtha area; and the

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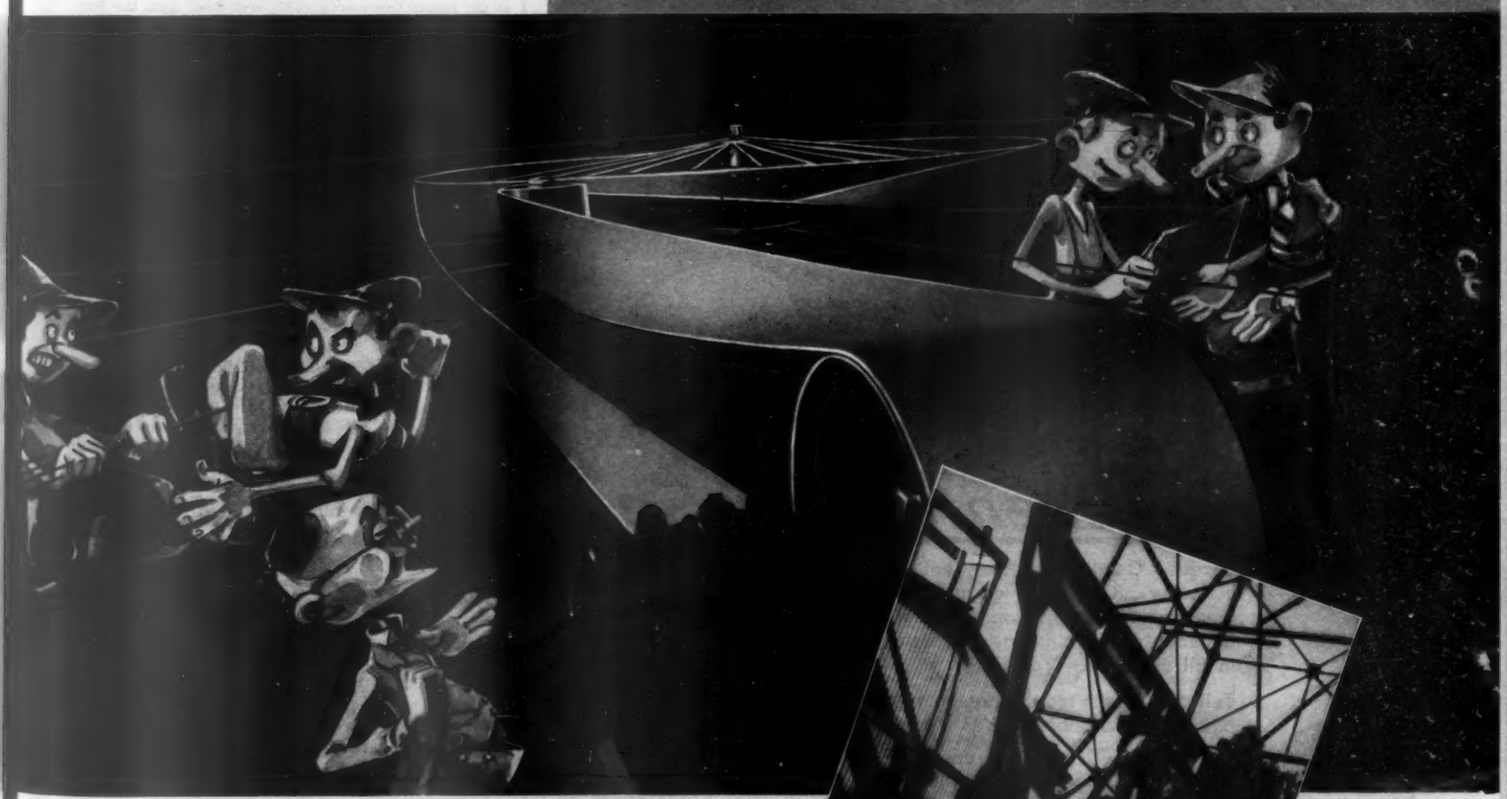

Counter-weighted individual rig drive in Arkansas production field.

REPUBLIC RUBBER

increasing effort to link the north and south fields by drilling in West Central Turner Valley.

Of the outpost wells, down the west flank from the original crude area, Okalta Oil Co.'s No. 6, LSD 3, Section 30-18-2w5, carried in 1938 to a record depth of 10,209 ft. and which encountered salt water in the lower porous zone of the Madison, was definitely abandoned after unsuccessful efforts to develop commercial production in the upper porous zone. A little farther south and east, Scottish Petroleums' No. 1, LSD 16, Section 19-18-2w5, got salt water in the lower zone after drilling to 9,001 ft., and was abandoned. In the far south, Brown Oil Corp.'s No. 6, LSD 15, Section 5-18-2w5, faulted back from the Benton to the overlying Belly River formation, and discontinued drilling at 4,517 ft.; though it cannot be accepted as cutting off all possibilities of an extension of the crude-producing area to the south.

On the other hand, Home Oil Co.'s No. 2 Millarville, LSD 3, Section 33-20-3w5, located north and west of the proven North Turner Valley naphtha area, and approximately 12 miles north and west of the South Turner Valley crude area, finished at 8,495 ft. and has maintained its position almost continuously throughout the year as the largest crude producer in the field. With bottom-hole pressure of 3,055 lb. and an exceedingly low gas-oil ratio, it was given a peak allowable in June of 999 bbl. a day, with potential production probably exceeding 3,000 bbl.

This strike led to increased activity in North Turner Valley, both south and north of the new producer, though the only definite completion was Royalite Oil Co.'s No. 43, LSD 2, Section 22-20-3w5, which was finished at 8,800 ft. after drilling through only the upper lime, which yielded a test flow of 2,052 bbl. a day through 1-in. choke. At the end of the year two other North Turner Valley tests were in the lime.

Meanwhile, steady drilling added numerous new producers in the original South Turner Valley crude area and began the proving of a continuous field linking the south with the north. Vulcan Brown Petroleum's No. 1, Section 5-19-2w5, was previously the northernmost crude producer, but during the year Winalta Royalties' No. 1, LSD 45, and Royalite Oil Co.'s No. 10, LSD 14, extended the crude area north in the same section, while Anglo-Canadian's No. 8, LSD 11, Section 7-19-2w5, proved crude nearly a mile north and Argus Royalties' No. 1, LSD 14, Section 25-19-3w5, though it finished only a small producer, proved the area 2 miles farther north and west and within 5 miles of the nearest North Turner Valley crude producer. Depths of the producing wells completed during the year varied from 7,121 ft. for Okalta Oils' No. 8, LSD 6, Section 16-18-2w5, to 8,800 ft. for Royalite's No. 43, LSD 2, Section 22-20-3w5.

Steveville Field

Probably the most important outside development of the year was in the Steveville area, some 110 miles east of Calgary, where three tests drilled by Anglo-Canadian Oil Co.—No. 1 in LSD 2, Section 13-21-12w4; No. 2 in LSD 4, Section 14-20-11w4; and No. 3 in SW¼ Section 34-19-10w4—encountered large gas flows at the top of the Madison limestone at depths varying from 3,171 to 3,378 ft. While efforts to develop crude oil in commercial quantities were unsuccessful, a large gas field was indicated, and further drilling is in progress.

East Central Area

A feature of the year was the activity of Franco Oils, Ltd., and associated interests in the Vermilion and Lloydminster fields of East Central Alberta. This company, primarily interested in building up gas reserves for Saskatoon and other Saskatchewan cities, fostered extensive development work by a number of small companies in eastern Alberta and western Saskatchewan.

In the Vermilion area Wain Town Gas & Oil Co.'s No. 1, LSD 16, Section 26-50-7w4, finished at 2,345 ft. with commercial gas production from several horizons. Wain Town-Battleview's No. 2, Section 20-50-2w4, finished at 1,842 ft. with a fair commercial production of 18-gravity crude, estimated as high as 300 bbl. a day. Franco-Vermilion's No. 1, Section 14-49-5w4, finished at 1,620 ft. with both gas and oil in commercial quantities in the Lower Cretaceous. This area links with the Battleview structure, where, a couple of years ago, Battleview Oils' No. 1 got a large gas flow, estimated around 38,000,000 ft. a day.

In the Alberta end of the Lloydminster area, Lloydminster Royalties' No. 1, LSD 4, Section 36-49-1w4, finished at 1,921 ft. with estimated pumping production of heavy crude around 100 to 200 bbl. a day. Shaw Petroleums' No. 1, LSD 3, Section 26-49-1w4, finished a gasser at 1,751 ft. with a flow from two horizons estimated 9,500,000 ft. a day. Shaw Petroleums' No. 2, LSD 10, Section 25-49-1w4, finished at 1,756 ft. with heavy crude, estimated 300 bbl. a day.

Saskatchewan Operations

The Lloydminster field extends into western Saskatchewan, where Shaw Petroleums' No. 3, LSD 5, Section 23-49-28w3, finished a crude producer, estimated 200 bbl. a day, at 1,710 ft., after getting gas in two upper horizons. A systematic development program is under way. A small local refinery will treat the asphaltic crude, while plans are definitely under way for piping the gas to Saskatoon and intervening communities.

Malahide Gas Field

The most important development in Ontario in 1939 was the opening of a new gas field in Malahide Township, Elgin County. The new area is some miles southwest of the Brownsville field in Oxford County, and, like the latter, secures its production from the Guelph-Niagara formation, though at somewhat greater depth. Development so far has been handled entirely by the Union Gas Co. of Chatham.

The field was actually opened late in 1938, and of 23 tests completed in 1939, 18 were producers, ranging from 200,000 to 2,000,000 cu. ft. a day open flow. The field extends east and west across Concessions 4 and 5, with the best producers in Concession 5, the most easterly producer being in Lot 28, Concession 5, and the most westerly in Lot 8, Concession 4. Systematic development is being continued, and the field will probably be connected with the Union transmission lines this spring.

The Union company also drilled a number of tests in the Haldimand field, in Rainham, Woodhouse, Walpole, and Dunn townships, finishing 10 dry holes and 6 producers.

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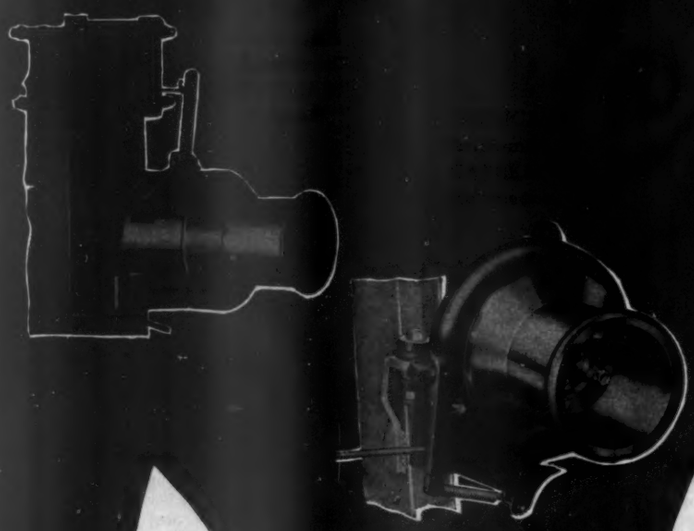

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Annual Review

MANY NEW POOLS FOUND IN KANSAS, PROVEN AREAS EXTENDED

By
DAL DALRYMPLE

FIELD activity in Kansas declined last year to the lowest point since 1935, but operations began to increase in the later months and by the end of December there was evidence of a distinct upswing that was expected to continue during 1940.

The decrease in drilling activity largely was confined to the proven fields, for Kansas wildcatters ranged far and wide in 1939, opened more than two score new oil fields, several gas pools and extended many of the older areas. Scarcely a week passed without one or more extensions or discoveries being recorded. The discoveries more than offset the total production for the year, so the estimated Kansas reserves showed a considerable increase at the end of the year.

New oil pools were opened in 16 counties, of which two, Phillips and Norton, were added to the producing lists for the first time. By counties, the new oil pools were divided as follows: Barton, 9; Butler, 1; Crawford, 1; Cowley, 2; Ellis, 1; Greenwood, 1; Johnson, 2; Labette, 1; McPherson, 1; Montgomery, 1; Norton, 1; Pratt, 1; Phillips, 1; Rice, 8; Russell, 4; Wilson, 1.

Discoveries of new pay zones in proven fields were recorded in several counties, and new gas areas were uncovered in Barber, Barton, Greenwood, Johnson, Sherman and Woodson counties. Some of the oil pools that were opened later were connected with other areas and lost their separate identity. Numerous areas that were opened were classed as extensions from the beginning and do not show in the list of discoveries.

While there was much interest and some activity in the northeastern Kansas sector of the Forest City basin, and there was a small revival of activity in some of the old stripper districts of eastern Kansas, the great bulk of the 1939 development was in western Kansas.

A total of 1,358 wells were completed, a decline of 215 from the 1,573 completions of 1938. Six counties—Barton, Cowley, Ellis, Rice, Russell and Stafford—accounted for 918 of the 1,358 total. Accompanying tables show distribution of the completions by counties and months.

Wildcat completions, including extensions, totaled 65 oil and gas wells and 150 dry holes. In the preceding year 67 wildcats found oil or gas production and 186 wildcats were failures.

Thus, the number of wildcat completions declined from that of 1938, but the percentage of discoveries increased from 26.48 2 years ago to 30.23 last year.

Conservative Development

There were no booms and in many instances only required wells were drilled, but conservative development of several of the major areas continued throughout the year. Cowley County's Hittle pool, with the state's biggest producers, provided the more sensational news of the year. The already big Silica field was made bigger, with extensions in both Barton and Rice counties. The Trapp field in Russell and Barton counties continued to expand and took in some of the neighboring pools. This was true of the rich Bemis field of Ellis County, to which the Cress and Shutts pools were joined. Ellis County's South Burnett pool provided some of the larger producers, was eventually joined with the lesser Burnett pool and gave promise of becoming much larger. The Bloomer field was extended from Barton into Ellsworth and Rice counties and took in the Habiger-Stumps area. The Wherry, Geneseo and Chase pools in Rice County, the Zenith field in Stafford County, and the Gorham district in Russell County had several extensions. Development of big gas reserves in the Cunningham-Cairo area of Kingman and Pratt counties was climaxed near the end of the year with discovery of oil in the Cairo sector. The Bornholdt pool in McPherson County gave promise of becoming a major area as the year waned, with numerous extensions in both McPherson and Rice counties.

The Kansas nomenclature committee, representing the Mid-Continent Oil and Gas Association, names the new pools and consolidates areas as developments justify. A summary of the committee's reports pictures the constantly changing picture in Kansas fields during 1939, as follows:

Kraft Pools Joined

Early in January, the committee decided that developments in northern Barton County proved that the South Kraft pool was a part of the Kraft field of Russell County, and joined them under the one name. The Proffitt pool in Rice County was named, as was the new Peavey pool in Ellis County.

A discovery in Russell County was named the North Fairfield pool at the February meeting, and outpost

(Continued on Page 130)

KANSAS DISCOVERIES IN 1939

Field and county—	Location	Operator—	Date	No. wells	Producing formation	Total depth	Initial production
Proffitt, Rice	12-20-10w	J. H. Tatlock	January	1	Arbuckle	3,335	299
South Burnett, Ellis	24-11-18w	Darby Petroleum Corp.	January	51	Arbuckle	3,112	2,275
North Fairfield, Russell	16-15-13w	Earl Wakefield and others	January	2	Lansing	3,411	837
Kruckenberg, Barton	14-19-15w	Amerada Petroleum Corp.	February	2	Arbuckle	3,632	132
Ferrell, Butler	28-28- 8e	Hay, Hall & Table Mesa Oil Co.	March	..	Mississippi	2,689	35
Marchand, Barton	24-20-12w	York State Oil Co.	April	5	Arbuckle	3,320	559
Southwest Letsch, Russell	33-14-13w	Skelly Oil Co.	April	2	Lansing	2,869	524
Gardner, Johnson	15-14-22e	OK Supply Co.	May	8	Bartlesville	850	50
West Gardner, Johnson	20-14-22e	Sagamore Oil & Gas Co.	May	6	Bartlesville	894	25
Barngrover, Rice	30-19- 9w	Gulf Oil Corp.	June	..	Arbuckle	3,284	1,322
Midway, Rice	8-20- 9w	Phillips Petroleum Co.	June	6	Arbuckle	3,259	177
Van Patten, Norton	26-4s -21w	Power & Olson Oil Cos.	June	1	Lansing	3,665	173
West Marchand, Barton	23-20-12w	Crown Petroleum Co. and E. E. Ash	June	1	Arbuckle	3,358	273
Bow Creek, Phillips	25- 5-18w	Blue Stem Oil Co.	June	1	Lansing	3,080	827
North Atherton, Russell	18-13-14w	Cities Service Oil Co.	June	1	Arbuckle	3,134	242
Pospishel, Barton	20-17-15w	J. A. Brouk and Republic Oil Co.	July	2	Arbuckle	3,573	231
Hodge, Rice	25-20- 6w	C. C. Nelson	July	..	Chat	3,336	422
Darien, Cowley	33-30- 4e	Hartman & Blair and others	July	5	Arbuckle	3,280	612
West Prusa, Barton	18-16-11w	Armer & Vernon	July	1	Lansing	3,217	527
South Wherry, Rice	23-21- 7w	E. J. Shaffer and C. L. Carlock	July	..	Conglomerate	3,400	790
West Trapp, Russell	15-15-14w	Phillips Petroleum Co.	July	3	Arbuckle	3,257	272
North Prusa, Barton	18-16-11w	Solar Oil Co.	September	4	Arbuckle	3,828	93
Krier, Barton	30-16-11w	B. B. & M. Co. and others	November	2	Conglomerate	3,327	446
Harzman, Barton	33-16-11w	J. A. Aylward and others	October	1	Lansing	3,356—P.B. 3,132	43
Feltes, Barton	14-16-12w	R. E. Day and others	November	1	Conglomerate	3,345	47
Rahn, Cowley	13-34- 5e	Jock Garden and others	September	1	Bartlesville	3,436—P.B. 2,950	100
East Orth, Rice	25-18-10w	Fred Jones and I. W. Murfin	October	1	Quartzite	3,209	806
Johnson, Crawford	17-28-22	H. L. Salisbury and others	October	1	Tucker	548	35
North Bornholdt, McPherson	18-20- 5w	Springrose Drlg. Co. and Central Pet. Co.	December	1	Chat	3,346	180
West Bredfeldt, Rice	12-18-10w	Saco Oil Co.	December	1	Arbuckle	3,268	373
Cairo, Pratt	7-28-11w	Skelly Oil Co. and others	December	1	Viola	4,283	375
Lyons, Rice	14-20- 8w	Derby Oil Co.	December	1	Simpson	3,284	126
Sowder, Greenwood	31-25-13	Austin Reed and others	July	..	Burgess	1,597	25
Clemmer, Montgomery	21-32-15	Lerke & Wharton	July	..	Arbuckle	1,537	100
Edna, Labette	35-34-18	D. H. Morgan and others	August	..	Arbuckle	1,155	112
Coyville, Wilson	32-27-14	John Gard and others	May	..	Arbuckle	1,604	75
Ainsworth-Topeka, Barton	35-16-13w	Skelly Oil Co.	February	1	Topeka	3,382—P.B. 2,929	451
Coralena-Dodge, Russell	5-15-13w	R. H. Shields	March	1	Dodge	2,976—P.B. 2,895	603
Beaver-Shallow, Barton	8-16-12w	Martin & Hearing	April	2	Topeka	2,906	2,546
Kruckenberg-Lansing, Barton	14-19-15w	Amerada Petroleum Corp.	April	1	Lansing	3,470—P.B. 3,395	437
Burnett-Lansing, Ellis	12-11-18w	Central Petroleum Co.	May	1	Lansing	3,358	1,163
Max-Lansing, Stafford	35-21-12w	Trigg & Allen	June	1	Lansing	3,658	881
Silica-Lansing, Rice	27-19-10w	Finston & Co.	June	7	Lansing	3,050	2,431
N. Fairfield-Arbuckle, Russell	15-15-13w	Sinclair Prairie Oil Co.	September	2	Arbuckle	3,333	550
Prusa-Basal, Barton	20-16-11w	Sinclair Prairie Oil Co.	May	2	Basal sand		213
Prusa-Lansing, Barton	17-16-11w	Sinclair Prairie Oil Co.	May	1	Lansing	3,260	57

GAS DISCOVERIES

							Cu. ft.
Prusa, Barton	17-16-11w	Sinclair Prairie Oil Co.	March	..	Lansing	3,263	28,500,000
Medicine Lodge Ex., Barber	17-33-13w	Barbara Oil Co.	April	..	Chat	4,706	3,871,000
Goodland, Sherman	30- 8-39w	Goodland Ind. Gas Co.	June	..	Cretaceous	1,307	75,000
Bross, Johnson	4-12-24e	B. F. Hammel and others	August	..	Sand	520	500,000
Goodland, Sherman	27- 8-39w	Goodland Ind. Gas Co.	August	..	Cretaceous	1,100	25,000
Tipton, Woodson	32-25-14	Turner and others	September	..	Sand	687	285,000
Ramey, Johnson	17-15-23	Willinbring and others	September	..	Sand	915—P.B. 610	200,000
N. Gardner, Johnson	4-14-22	OK Supply Co. and others	November	..	Squirrel	621	180,000
Gregg, Greenwood	35-25-12	Charles Barker	September	..	Mississippi	1,660	500,000

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KANSAS

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
BARTON COUNTY:													
Ainsworth district—													
Daily average	1,463	1,365	1,344	1,401	1,283	1,511	1,351	777	1,187	1,268	1,419	1,726	
Month	45,353	38,220	41,664	42,030	39,773	45,330	41,881	24,087	35,610	39,308	42,570	53,506	489,332
Albert—													
Daily average	564	442	545	575	629	721	522	254	393	402	392	310	
Month	17,484	12,376	16,895	17,250	19,499	21,630	16,182	7,874	11,790	12,462	11,760	9,610	174,812
Beaver and North Beaver—													
Daily average	994	818	951	903	877	794	726	454	661	628	682	704	
Month	30,814	22,904	29,481	27,090	27,187	23,820	22,506	14,074	19,830	19,468	20,460	21,824	279,458
Bloomer—													
Daily average	1,831	1,812	2,251	2,264	2,190	2,167	2,617	1,529	1,943	2,106	2,357	4,375	
Month	56,761	50,736	69,781	67,920	67,890	65,010	81,127	47,399	58,290	65,286	70,710	135,625	836,535
Ellinwood district—													
Daily average	449	575	391	486	529	497	419	273	592	681	829	644	
Month	13,919	16,100	12,121	14,580	16,399	14,910	12,989	8,463	17,760	21,111	24,870	19,964	193,186
South Silica—													
Daily average	1,821	1,828	2,034	2,324	2,101	1,841	2,181	1,499	1,884	2,135	2,433	2,716	
Month	56,451	51,184	63,054	69,720	65,131	55,230	67,611	46,469	56,520	66,185	72,990	84,196	754,741
Kraft—													
Daily average	623	602	727	611	583	596	843	415	726	967	778	1,048	
Month	19,313	16,856	22,537	18,330	18,073	17,580	26,133	12,865	21,780	29,977	23,340	32,488	259,272
Miscellaneous pools—													
Daily average	685	805	620	675	747	1,122	1,164	867	1,245	1,202	1,554	1,734	
Month	21,235	22,540	19,220	20,250	23,157	33,660	36,084	26,877	37,350	37,262	46,620	53,754	378,009
Clawson—													
Daily average	.....	.....	491	643	875	583	446	79	102	195	128	525	
Month	.....	.....	15,221	19,290	27,125	17,490	13,826	2,449	3,060	6,045	3,840	16,275	124,621
ELLIS COUNTY:													
Bemis and South Bemis—													
Daily average	4,702	4,603	5,881	6,712	6,472	6,443	6,701	4,419	5,087	6,150	6,888	6,522	
Month	145,762	128,884	182,311	201,360	200,632	193,290	207,731	136,989	152,610	190,650	206,640	202,182	2,149,041
Blue Hill—													
Daily average	387	138	27	35	99	71	51	43	85	157	194	122	
Month	11,997	3,864	837	1,050	3,069	2,130	1,581	1,333	2,550	4,867	5,820	3,782	42,880
Cress—													
Daily average	547	523	629	817	645	578	501	519	507	530	736	538	
Month	16,957	14,644	19,499	24,510	19,995	17,340	15,531	16,089	15,210	16,430	22,080	16,678	214,963
Marshall—													
Daily average	266	304	302	396	332	216	319	217	269	274	312	220	
Month	8,246	8,512	9,362	11,880	10,292	6,480	9,889	6,727	8,070	8,494	9,360	6,820	104,132
Richards—													
Daily average	306	247	165	146	129	128	96	65	45	42	41	39	
Month	9,486	6,916	5,115	4,380	3,998	3,840	2,976	2,015	1,350	1,302	1,230	1,209	43,818
Ruder—													
Daily average	207	239	278	233	294	216	244	101	275	220	203	219	
Month	6,417	6,692	8,618	6,990	9,114	6,480	7,564	3,131	8,250	6,820	6,090	6,789	82,955
Shutts—													
Daily average	471	450	497	615	499	544	474	349	444	540	616	426	
Month	14,601	12,600	15,407	18,450	15,469	16,320	14,694	10,819	13,320	16,740	18,480	13,206	180,106
Ubert—													
Daily average	376	226	178	153	135	111	123	46	87	89	85	90	
Month	11,656	6,328	5,518	4,590	4,185	3,330	3,813	1,426	2,610	2,759	2,550	2,790	51,555
Walters—													
Daily average	571	473	603	647	662	716	667	427	612	698	759	717	
Month	17,701	13,244	18,693	19,410	20,522	21,480	20,677	13,237	18,360	21,638	22,770	22,227	229,959
Miscellaneous pools—													
Daily average	405	278	470	467	235	474	935	650	256	307	396	346	
Month	12,555	7,784	14,570	14,010	7,285	14,220	28,985	20,150	7,680	9,517	11,880	10,726	159,362
Burnett and South Burnett—													
Daily average	.....	.....	.....	.....	242	364	.....	.....	780	1,201	1,732	2,509	
Month	.....	.....	.....	.....	7,502	10,920	.....	.....	23,400	37,231	51,960	77,779	208,792
ELLSWORTH COUNTY:													
Breford—													
Daily average	317	292	341	313	306	409	412	244	300	278	336	342	
Month	9,827	8,176	10,571	9,390	9,486	12,270	12,772	7,564	9,000	8,618	10,080	10,602	118,356
Lorraine—													
Daily average	1,514	1,827	1,872	1,814	1,541	1,568	1,803	942	1,759	1,774	1,680	1,694	
Month	46,934	51,156	58,032	54,420	47,771	47,040	55,893	29,202	52,770	54,994	50,400	52,514	601,126
Schroeder-Wilkins—													
Daily average	199	230	283	362	419	483	533	326	579	653	736	800	
Month	6,169	6,440	8,773	10,860	12,989	14,490	16,523	10,106	17,370	20,243	22,080	24,800	170,843
Stoltenberg—													
Daily average	345	324	337	366	339	379	358	267	392	367	403	453	
Month	10,695	9,072	10,447	10,980	10,509	11,370	11,098	8,277	11,760	11,377	12,090	14,043	131,718
Stratman—													
Daily average	213	211	225	225	249	247	229	144	225	215	208	202	
Month	6,603	5,908	6,975	6,750	7,719	7,410	7,099	4,464	6,750	6,665	6,240	6,262	78,845
Heiken—													
Daily average	132	134	120	45	38	34	48	13	51	55	49	55	
Month	4,092	3,752	3,720	1,350	1,178	1,020	1,488	403	1,530	1,705	1,470	1,705	23,413
HARVEY COUNTY:													
Hallstead—													
Daily average	458	477	431	509	423	416	463	181	586	740	672	643	
Month	14,198	13,356	13,361	15,270	13,113	12,480	14,353	5,611	17,580	22,940	20,160	19,933	182,355
Hollow-Nikkel—													
Daily average	2,747	2,474	2,532	2,395	2,105	2,569	1,793	877	1,692	1,569	1,600	1,954	
Month	85,157	69,272	78,492	71,850	65,255	77,070	55,583	27,187	50,760	48,639	48,000	60,574	737,839
Sperling—													
Daily average	369	266	178	179	173	112	152	73	133	124	143	125	
Month	11,439	7,448	5,518	5,370	5,363	3,360	4,712	2,263	3,990	3,844	4,290	3,875	61,472
McPHERSON COUNTY:													
Bornholdt—													
Daily average	31	15	40	29	29	147	51	44	153	389	735	368	
Month	961	420	1,240	870	899	4,410	1,581	1,364	4,590	11,439	22,050	11,408	61,232
Canton, North—													
Daily average	93	79	72	69	50	157	44	25	22	10	17	24	
Month	2,883	2,212	2,232	2,070	1,829	4,710	1,364	775	660	310	510	744	20,299
Chindberg—													
Daily average	428	380	370	376	359	428	313	185	266	306	298	299	
Month	13,268	10,640	11,470	11,280	11,129	12,840	9,703	5,735	7,980	9,486	8,940	9,269	121,740
Graber—													
Daily average	2,938	3,109	3,008	3,001	2,492	2,426	2,589	1,353	2,432	2,596	2,703	3,131	
Month	91,078	87,052	93,248	90,030	77,252	72,780	80,259	41,943	72,960	80,476	81,090	97,061	965,229
Johnson—													
Daily average	317	301	292	277	263	320	221	206	252	204	243	234	
Month	9,827	8,428	9,052	8,310	8,153	9,600	6,851	6,386	7,560	6,324	7,290	7,254	95,035
Lindsborg—													
Daily average	.....	.....	.....	.....	.....	.....	32	23	40	126	94	59	
Month	.....	.....	.....	.....	.....	.....	992	713	1,200	3,906	2,820	1,829	11,460
McPherson—													
Daily average	229	250	242	218	208	210	222	119	263	211	180	199	
Month	7,099	7,000	7,502	6,540	6,448	6,300	6,882	3,689	7,890	6,541	5,400	6,169	77,460
Ritz-Canton—													
Daily average	5,549	5,037	5,894	5,279	5,234	5,574	4,713	3,038	4,764	3,988	4,238	4,347	
Month	172,019	142,044	182,714	158,370	162,254	167,220	146,103	94,178	142,920	123,566	127,140	134,757	1,753,285
Roxbury—													
Daily average	32	144	126	145	130	141	238	110	90	171	255	99	
Month	992	4,032	3,720	4,350	4,030	4,230	7,378	3,410	2,700	5,301	7,650	3,069	50,862
Voshell—													
Daily average	1,535	1,558	1,625	1,594	1,619	1,606	1,860	1,045	1,556	1,517	1,676	1,687	
Month	47,585	43,624	50,375	47,820	50,189	48,180	57,660	32,395	46,680	47,027	50,280	52,297	574,112
RENO COUNTY:													
Buhler—													
Daily average	179	232	427	726	938	1,028	647	307	675	387	317	215	
Month	5,549	6,496	13,237	21,780	29,078	30,840	20,057	9,517	20,250	11,997	9,510	6,665	184,976

(Continued on Next Page)

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AMERICAN *HEAVY DUTY ROLLER BEARINGS*

producers were classed as extensions of the Prusa and Silica pools, Barton County; Buhler pool, Reno County; Campbell pool, Rice County; Gorham and Gurney pools, Russell County, and South Sittner pool, Stafford County. The Kruckenberg pool, Barton County, was named.

Several important developments were reported when the committee next met late in March. A new area in Butler County was named the Ferrell pool, and the Prusa gas pool in Barton County was designated. Outposts were recognized as extensions to the Allon pool, Russell County; Prusa and Ellinwood pools, Barton County, and the Campbell pool, Rice County. The Medicine Lodge gas pool in Barber County was enlarged. The East Coralena pool, Russell County, was joined with the Coralena pool, and the North Cramm pool, Rice County, became a part of the Cramm pool. The Morel pool, Graham County, and Leesburgh pool, Stafford County, were extended.

New pools named at the April meeting were the Marchand area, Barton County; Southwest Letsch, Russell County; Barngrover and Midway, Rice County. The Schroeder pool was joined to the Wilkins pool in Ellsworth County. New outpost producers were classed as extensions to the Beaver and Kruckenberg pools, Barton County; Morel pool, Graham County; Gorham and Allon pools, Russell County; Hittle field, Cowley Coun-

(Continued on Page 134)

KANSAS (Continued)

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
Burrton-Haury—													
Daily average	8,388	8,052	8,978	9,018	8,887	9,987	9,263	5,128	8,541	9,033	9,351	10,138	
Month	260,028	225,456	278,318	270,540	275,497	299,610	287,153	158,968	256,230	280,023	280,530	314,278	3,186,631
Hilger—													
Daily average	627	611	696	906	788	627	789	592	607	531	702	828	
Month	19,437	17,108	21,576	27,180	24,426	18,810	24,459	18,352	18,210	16,461	21,060	25,668	252,749
Lerado—													
Daily average	699	650	719	741	834	848	859	433	839	998	1,023	1,010	
Month	21,669	18,200	22,289	22,230	25,854	25,440	26,629	13,423	25,170	30,938	30,690	31,310	293,842
Miscellaneous—													
Daily average	97	100	120	106	95	120	88	33	103	154	120	131	
Month	3,007	2,800	3,720	3,180	2,945	3,600	2,728	1,023	3,090	4,774	3,600	4,061	38,528
RICE COUNTY:													
Campbell—													
Daily average	1,151	1,161	1,286	1,454	1,565	1,794	1,646	758	926	535	640	356	
Month	35,681	32,508	39,866	43,620	48,515	53,820	51,026	23,498	27,780	16,585	19,200	11,036	403,135
Chase—													
Daily average	4,026	4,144	4,386	4,347	4,309	4,371	4,574	2,502	3,915	4,200	4,082	4,729	
Month	124,806	116,032	135,966	130,410	133,579	131,130	141,794	77,562	117,450	130,200	122,460	146,599	1,507,988
Cram—													
Daily average	162	152	211	245	248	303	376	225	417	603	591	758	
Month	5,022	4,256	6,541	7,350	7,688	9,090	11,656	6,975	12,510	18,693	17,730	23,498	131,009
Edwards—													
Daily average	1,184	1,395	1,913	1,973	1,846	1,477	1,546	884	1,198	1,192	1,492	1,286	
Month	36,704	39,060	59,303	59,190	57,226	44,310	47,926	27,404	35,940	36,952	44,760	39,866	528,641
Geneseo—													
Daily average	3,662	3,553	3,329	3,439	3,185	3,131	3,648	1,895	3,044	3,791	3,680	3,910	
Month	113,522	99,484	103,199	103,170	98,735	93,930	113,088	58,745	91,320	117,521	110,400	121,210	1,224,324
Haferman—													
Daily average	125	122	138	129	145	176	182	54	177	310	222	239	
Month	3,875	3,416	4,278	3,870	4,495	5,280	5,642	1,674	5,310	9,610	6,660	7,409	61,519
Keesling—													
Daily average	711	774	851	742	724	826	959	526	734	980	834	998	
Month	22,041	21,672	26,381	22,260	22,444	24,780	29,729	16,306	22,020	30,380	25,020	30,938	293,971
Orth—													
Daily average	178	177	193	167	171	128	217	146	182	159	201	254	
Month	5,518	4,956	5,983	5,010	5,301	3,840	6,727	4,526	5,460	4,929	6,030	7,874	66,154
Ploog—													
Daily average	183	171	193	176	161	198	207	121	364	388	361	254	
Month	5,673	4,788	5,983	5,280	4,991	5,940	6,417	3,751	10,920	12,028	10,830	7,874	84,475
Raymond—													
Daily average	706	668	630	696	643	663	625	483	563	475	639	582	
Month	21,886	18,704	19,530	20,880	19,933	19,890	19,375	14,973	16,890	14,725	19,170	18,042	223,998
Silica—													
Daily average	9,173	8,979	10,477	10,209	10,347	10,580	12,038	6,554	9,958	12,108	12,216	11,114	
Month	284,363	251,412	324,787	306,270	320,757	317,400	373,178	203,174	298,740	375,348	366,480	344,534	3,766,443
Stumps—													
Daily average	2,065	2,140	2,451	2,676	2,193	1,748	1,655	924	1,309	1,332	1,530	533	
Month	64,015	59,920	75,981	80,280	67,983	52,440	51,305	28,644	39,270	41,292	45,900	16,523	623,553
Welch and North Welch—													
Daily average	361	375	499	368	398	340	370	144	486	384	372	394	
Month	11,191	10,500	15,469	11,040	12,338	10,200	11,470	4,464	14,580	11,904	11,160	12,214	136,530
Wenke and West Wenke—													
Daily average	164	190	172	201	169	201	191	157	154	134	155	139	
Month	5,084	5,320	5,332	6,030	5,239	6,030	5,921	4,867	4,620	4,154	4,650	4,309	61,556
Wherry and East and South Wherry—													
Daily average	3,060	3,117	3,725	3,937	3,696	3,289	3,649	2,208	3,306	3,541	3,963	3,984	
Month	94,860	87,276	115,475	118,110	114,576	98,670	113,119	68,448	99,180	109,771	118,890	123,504	1,261,879
Miscellaneous—													
Daily average	238	204	205	370	255	393	331	350	712	673	511	352	
Month	7,378	5,712	6,355	11,100	7,905	11,790	10,261	10,850	21,360	20,863	15,330	10,912	139,816
STAFFORD COUNTY:													
Drach—													
Daily average	215	175	238	221	226	273	224	163	159	139	170	144	
Month	6,665	4,900	7,378	6,630	7,006	8,190	6,944	5,053	4,770	4,309	5,100	4,464	71,409
Gates—													
Daily average	229	224	256	260	277	325	285	210	292	280	341	282	
Month	7,099	6,272	7,936	7,800	8,587	9,750	8,835	6,510	8,760	8,680	10,230	8,742	99,201
Richardson—													
Daily average	1,076	1,048	1,182	2,021	1,341	850	1,366	955	1,277	1,230	1,401	1,281	
Month	33,356	29,344	36,642	60,630	41,571	25,500	42,346	29,605	38,310	38,130	42,030	39,711	457,175
Sittner and South Sittner—													
Daily average	265	473	374	391	340	249	303	221	195	302	314	252	
Month	8,215	13,244	11,594	11,730	10,540	7,470	9,393	6,851	5,850	9,362	9,420	7,812	111,481
St. John—													
Daily average	357	347	405	404	421	431	441	348	490	495	591	455	
Month	11,067	9,716	12,555	12,120	13,051	12,930	13,671	10,788	14,700	15,345	17,730	14,105	157,778
Zenith—													
Daily average	2,404	2,474	3,295	4,587	3,508	3,443	3,945	2,466	3,182	3,771	4,867	4,549	
Month	74,524	69,272	102,145	137,610	108,748	103,290	122,295	76,446	95,460	116,901	146,010	141,019	1,293,720
Miscellaneous—													
Daily average	324	259	440	423	550	480	473	302	689	781	553	554	
Month	10,044	7,252	13,640	12,690	17,050	14,400	14,663	9,362	20,670	24,211	16,590	17,174	177,746
RUSSELL COUNTY:													
Allen—													
Daily average	123	131	164	189	191	255	.....	.....	.....	.....	.....	.....	
Month	3,813	3,668	5,084	5,670	5,921	7,650	.....	.....	.....	.....	.....	.....	31,806
Atherton—													
Daily average	365	326	399	414	408	448	422	299	347	325	440	358	
Month	11,315	9,128	12,369	12,420	12,648	13,440	13,082	9,269	10,410	10,075	13,200	11,098	138,454
Balta and North Balta—													
Daily average	153	99	112	121	133	119	148	142	194	273	243	323	
Month	4,743	2,772	3,472	3,630	4,123	3,570	4,588	4,402	5,820	8,463	7,290	10,013	62,886
Big Creek and East Big Creek—													
Daily average	659	633	867	710	674	744	886	523	738	841	833	827	
Month	20,429	17,724	26,877	21,300	20,894	22,320	27,466	16,213	22,140	26,071	24,990	25,637	272,061
Coralena—													
Daily average	707	637	735	677	670	616	980	615	1,117	1,631	1,507	1,385	
Month	21,917	17,836	22,785	20,310	20,770	18,480	30,380	19,065	33,510	50,561	45,210	42,935	343,759
Eichman—													
Daily average	136	107	111	103	108	128	120	84	102	105	111	107	
Month	4,216	2,996	3,441	3,090	3,348	3,840	3,720	2,604	3,060	3,255	3,330	3,317	40,217
Fairfield and North Fairfield—													
Daily average	12	117	153	125	160	149	88	62	142	87	122	94	
Month	372	3,276	4,743	3,750	4,960	4,470	2,728	1,922	4,260	2,697	3,660	2,914	39,752
Fairport—													
Daily average	1,861	1,734	1,841	1,751	1,869	1,682	1,908	1,049	1,885	1,953	1,851	1,815	
Month	57,691	48,552	57,071	52,530	57,939	50,460	59,148	32,519	56,550	60,543	55,530	56,265	644,798
Gorham—													
Daily average	4,864	5,049	5,784	5,821	5,736	5,973	6,484	3,978	5,622	5,653	5,716	7,699	
Month	150,784	141,372	179,304	174,630	177,816	179,190	201,004	123,318	168,660	175,243	171,480	238,669	2,081,470

(Continued on Next Page)

This Link-Belt **HYPER** *Chain Keeps Smoothly Rolling On*

● One and one-half years' continuous drilling is remarkable chain performance in itself, but this Coastal Louisiana Contractor tells us that his 3-Bar HYPER, after that period of hard, fast service, is still giving new chain performance. Not only has his chain cost been minimized by unfailing service like this, but the saving in rig time mounts up on the profit side as a result.

And thus, from one oil producing state after another, come good reports on the dependable operation of Link-Belt Chains . . . footage records, long service, extreme strength, minimum breakage, low maintenance cost . . . to the end that the preference for Link-Belt Oil Country Chains continues, for good reason, to grow on and on.

LINK-BELT COMPANY

Indianapolis Houston Dallas Los Angeles
Philadelphia Chicago New York
Distributors in all fields

7933

LINK-BELT CHAINS

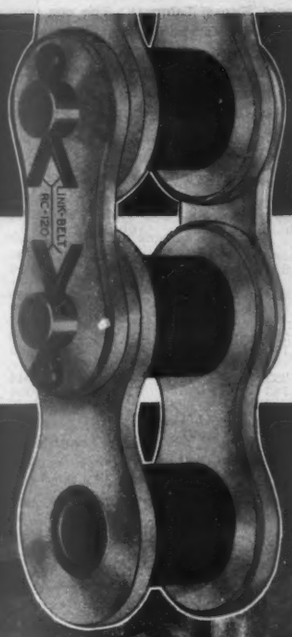
THE CHOICE OF EXPERIENCED DRILLERS

KANSAS (Continued)

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
Greenvale—													
Daily average	125	136	149	118	111	149	161	48	176	198	179	207	
Month	3,875	3,808	4,619	3,540	3,441	4,410	4,991	1,488	5,280	6,138	5,370	6,417	53,437
Gurney—													
Daily average	940	2,305	1,521	1,174	1,291	937	1,628	577	1,765	1,781	1,929	2,142	
Month	29,140	64,540	47,151	35,200	40,021	28,110	50,468	17,887	52,950	55,211	57,870	66,402	544,970
Hall—													
Daily average	888	795	887	891	939	918	2,594	1,719	2,441	2,908	2,851	3,944	
Month	27,528	22,260	27,497	26,730	29,109	27,540	80,414	53,289	73,230	90,148	85,530	122,264	665,539
Lesch and South and Southwest Letsch—													
Daily average	932	997	1,084	1,038	1,169	1,384	.....	.....	.....	.....	.....	.....	
Month	28,892	27,916	33,604	31,140	36,239	41,520	.....	.....	.....	.....	.....	.....	199,311
Neidenthal—													
Daily average	226	205	220	197	198	209	230	103	175	172	142	184	
Month	7,006	5,740	6,820	5,910	6,138	6,270	7,130	3,193	5,250	5,332	4,260	5,704	68,753
Russell—													
Daily average	942	915	1,026	1,037	1,093	1,109	1,248	860	959	742	934	962	
Month	29,202	25,620	31,806	31,110	33,883	33,270	38,688	26,660	28,770	23,002	28,020	30,442	360,473
Schneider—													
Daily average	74	121	168	194	186	177	319	177	257	333	378	366	
Month	2,294	3,388	5,208	5,820	5,766	5,310	9,889	5,487	7,710	10,323	11,340	11,346	83,881
Sellens—													
Daily average	670	535	599	441	456	505	567	356	469	481	481	606	
Month	20,770	14,980	18,569	13,230	14,136	15,150	17,577	11,036	14,070	14,911	14,430	18,786	187,645
Trapp and South Trapp—													
Daily average	8,406	8,205	9,493	8,692	9,020	10,034	11,859	7,173	10,946	12,037	12,136	10,770	
Month	260,586	229,740	294,283	260,760	279,620	301,020	367,629	222,363	328,380	373,147	364,080	333,870	3,615,478
Vaughn—													
Daily average	491	535	609	537	513	606	756	450	531	597	564	612	
Month	15,221	14,980	18,879	16,110	15,903	18,180	23,436	13,950	15,930	18,507	16,920	18,972	206,988
Miscellaneous—													
Daily average	511	525	572	286	281	363	439	207	1,584	403	399	388	
Month	15,841	14,700	17,732	8,580	8,711	10,890	13,608	6,417	47,520	12,493	11,970	12,028	180,491
SEDGWICK COUNTY:													
Eastborough and North Eastborough—													
Daily average	589	712	693	637	726	649	650	327	670	640	629	634	
Month	18,259	19,936	21,483	19,110	22,506	19,470	20,150	10,137	20,100	19,840	18,870	19,654	228,885
Goodrich—													
Daily average	841	934	825	858	766	862	667	479	662	618	617	628	
Month	26,071	26,152	25,575	25,740	23,746	25,860	20,677	14,849	19,860	19,158	18,510	19,468	266,296
Greenwich—													
Daily average	674	673	974	974	861	921	745	363	871	779	754	780	
Month	20,894	18,844	30,194	29,220	26,691	27,630	23,219	11,253	26,130	24,149	22,620	24,180	285,024
Robbins—													
Daily average	348	357	356	332	353	352	304	181	365	328	317	314	
Month	10,788	9,996	11,036	9,960	10,943	10,560	9,424	5,611	10,950	10,168	9,510	9,734	118,680
Valley Center—													
Daily average	914	899	930	863	936	891	939	480	912	923	932	919	
Month	28,334	25,172	28,830	25,890	29,016	26,730	29,109	14,880	27,360	28,613	27,960	28,489	320,389
Miscellaneous—													
Daily average	105	66	76	95	75	83	83	49	99	66	59	60	
Month	3,255	1,848	2,356	2,850	2,325	2,490	2,573	1,519	2,970	2,046	1,770	1,860	27,862
SUMNER COUNTY—													
Caldwell—													
Daily average	183	157	208	213	210	212	195	106	189	185	173	169	
Month	5,673	4,396	6,448	6,390	6,510	6,360	6,045	3,286	5,670	5,735	5,190	5,239	66,942
Churchill—													
Daily average	663	642	549	564	610	587	613	302	392	551	513	517	
Month	20,553	17,976	17,019	16,920	18,910	17,610	19,003	9,362	11,760	17,081	15,390	16,027	197,611
Oxford and West Oxford—													
Daily average	1,061	1,070	973	937	988	936	800	461	752	820	827	830	
Month	32,891	29,960	30,163	28,110	30,628	28,080	24,800	14,291	22,560	25,420	24,810	25,730	317,443
Padgett—													
Daily average	226	205	235	220	203	209	214	106	272	205	234	227	
Month	7,006	5,740	7,285	6,600	6,293	6,270	6,634	3,286	8,160	6,355	7,020	7,037	77,686
Wellington—													
Daily average	1,716	2,032	2,164	1,960	2,065	2,018	1,960	1,156	1,857	1,837	1,798	1,804	
Month	53,196	56,896	67,084	58,800	64,015	60,540	60,760	35,836	55,710	56,947	53,940	55,924	679,648
Latta—													
Daily average	.....	179	219	311	304	308	314	278	296	322	314	311	
Month	.....	5,012	6,789	9,330	9,424	9,240	9,734	8,618	8,880	9,982	9,420	9,641	96,050
Miscellaneous—													
Daily average	204	187	160	183	161	150	180	112	135	149	164	155	
Month	6,324	5,236	4,960	5,490	4,991	4,500	5,580	3,472	4,050	4,619	4,920	4,805	58,967
COWLEY COUNTY:													
Burden—													
Daily average	216	203	210	217	194	189	181	69	240	174	204	194	
Month	6,696	5,684	6,510	6,510	6,014	5,670	5,611	2,139	7,200	5,394	6,120	6,014	69,562
Frog Hollow—													
Daily average	452	602	637	745	516	525	478	319	378	721	881	796	
Month	14,012	16,856	19,747	22,350	15,996	15,750	14,818	9,889	11,340	22,351	26,430	24,676	214,215
Hittle—													
Daily average	904	1,347	1,761	2,320	1,848	2,094	1,665	1,070	1,433	4,733	8,951	9,002	
Month	28,024	37,716	54,591	69,600	57,288	62,820	51,615	33,170	42,990	146,723	268,530	279,062	1,132,129
Rainbow Bend—													
Daily average	1,069	1,027	1,088	1,059	1,106	1,098	1,059	646	943	1,045	1,017	1,014	
Month	33,139	28,756	33,728	31,770	34,286	32,940	32,829	20,026	28,290	32,395	30,510	31,434	370,103
Rock and East and North Rock—													
Daily average	337	376	540	511	565	556	464	235	428	432	438	427	
Month	10,447	10,528	16,740	15,330	17,515	16,680	14,384	7,285	12,840	13,392	13,140	13,237	161,518
State—													
Daily average	251	230	199	243	223	227	205	129	230	197	226	228	
Month	7,781	6,440	6,169	7,290	6,913	6,810	6,355	3,999	6,900	6,107	6,780	7,068	78,612
Weathered—													
Daily average	1,989	1,846	1,785	1,794	1,734	1,759	1,109	632	634	643	1,061	983	
Month	61,659	51,688	55,645	53,820	53,745	52,770	34,379	19,592	19,020	19,933	31,830	30,473	484,563
Winfield—													
Daily average	338	292	349	341	338	336	329	154	320	320	314	316	
Month	10,478	8,176	10,819	10,230	10,478	10,080	10,199	6,014	9,600	9,920	9,420	9,796	115,210
Miscellaneous—													
Daily average	1,705	1,800	1,681	1,737	1,756	1,741	1,450	1,038	2,095	1,781	2,115	2,081	
Month	52,855	50,400	52,111	52,110	54,436	52,230	44,950	32,178	62,850	55,211	63,450	64,511	637,292
BUTLER COUNTY:													
Augusta—													
Daily average	1,348	1,231	1,307	1,243	1,362	1,309	1,243	765	1,268	1,258	1,213	1,217	
Month	41,788	34,468	40,517	37,290	42,222	39,270	38,533	23,715	38,040	38,998	36,390	37,727	448,958
Blankenship—													
Daily average	209	254	219	238	243	241	226	158	173	246	264	229	
Month	6,479	7,112	6,789	7,140	7,533	7,230	7,006	4,898	5,190	7,626	7,920	7,099	82,022
Brandt-Sensbaugh—													
Daily average	246	251	225	223	315	296	311	227	403	349	405	366	
Month	7,626	7,028	6,975	6,690	9,765	8,880	9,641	7,037	12,090	10,819	12,150	11,346	110,047
Elbing—													
Daily average	1,227	1,175	1,157	1,186	1,233	1,237	1,176	611	1,131	1,138	1,164	1,147	
Month	38,037	32,900	35,867	35,580	38,223	37,110	36,456	18,941	33,930	35,278	34,920	35,557	412,799
Eldorado—													
Daily average	7,632	7,577	7,393	7,615	7,914	7,880	7,694	4,335	7,614	7,847	7,809	7,818	
Month	236,592	212,156	229,183	228,450	245,334	236,700	238,514	134,385	228,420	243,257	234,270	242,358	2,709,619
Fox-Bush—													
Daily average	382	401	401	388	408	405	405	158	389	381	365	369	
Month	11,842	11,228	12,431	11,640	12,648	12,150	12,555	5,828	11,670	11,811	10,950	11,439	136,192
Garden—													
Daily average	196	227	231	208	217	211	209	87	230	170	172	167	
Month	6,076	6,356	7,161	6,240	6,727	6,330	6,479	2,697	6,900	5,270	5,160	5,177	70,573
Haverhill—													
Daily average	260	292	247	242	243	237	240	138	209	229	229	221	
Month	8,060	8,496	7,657	7,260	7,533	7,110	7,440	4,278	6,270	7,099	6,870	6,851	82,924

(Continued on Next Page)



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● If you've ever watched roller chain in action on a ditching machine you've seen it under one of its hardest tests. The driving element is continuously "on the spot." First, the uneven strain results in a constantly varying pull. Second, the chain is ordinarily exposed to all kinds of weather, as well as to dirt, dust, grit, etc. Note the drives (100% Link-Belt Silverlink Roller Chain) on this large Buckeye Ditcher cutting a 33″ x 60″ ditch for a 24″ gas gathering line.

And there's nothing "soft" about the chain job on a pipe cleaning machine. The rough surface of pits and scales means anything but smooth operation. All drives on the W-K-M Pipe Cleaning Machine (note inset) are Link-Belt Silverlink Roller Chains.

Pipe line contractors know from years of experience that Link-Belt chain stands the gaff of these gruelling jobs, and that it means less breakage and less shutdown time, resulting in economy as well as efficiency.

LINK-BELT COMPANY

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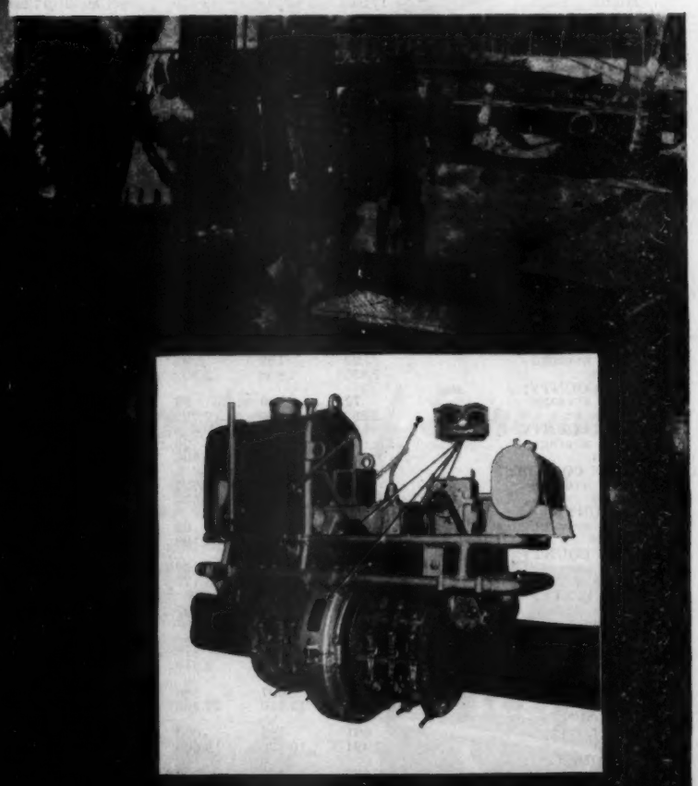

LINK-BELT *Silverlink* ROLLER CHAINS

ty; South Bemis pool, Ellis County; Stumps pool, Ellsworth County, and Dopita and Laton areas, Rooks County.

More Consolidations

Late in May the committee added the South Coralena area to the Coralena pool, Russell County; consolidated the Peavey, South Burnett and Burnett pools, Ellis County, as the Burnett field; added the Habiger pool of Rice and Ellsworth counties to the three-county Bloomer field; united the Barngrover pool with the Chase field, Rice County, and the Allon pool with the Gurney pool, Russell County. The one new area named was the West Marchand pool, Barton County. Pools extended included the Edwards area, Ellsworth County; Campbell and Midway, Rice County; Marchand pool, Barton County; North Balta and Neidenthal, Russell County. The Prusa-Basal sand and Prusa-Lansing pools

KANSAS (Continued)

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
Keighley—													
Daily average	223	197	170	168	154	160	149	87	151	155	146	149	
Month	6,913	5,516	5,270	5,040	4,774	4,800	4,619	2,697	4,530	4,805	4,380	4,619	57,963
McCullogh—													
Daily average	261	179	274	215	151	192	200	105	129	176	201	189	
Month	8,091	5,012	8,494	6,450	4,681	5,760	6,200	3,255	3,870	5,456	6,030	5,859	69,158
Potwin—													
Daily average	803	730	778	773	807	803	739	497	773	752	753	760	
Month	24,893	20,440	24,118	23,190	25,017	24,090	22,909	15,407	23,190	23,312	22,590	23,560	272,716
Reynolds-Schaffer—													
Daily average	323	293	328	319	347	318	360	178	392	356	330	344	
Month	10,013	8,204	10,168	9,570	10,757	9,540	11,160	5,518	11,760	11,036	9,900	10,664	118,290
Smock-Sluss—													
Daily average	161	140	165	155	173	166	175	87	155	171	157	162	
Month	4,991	3,920	5,115	4,650	5,363	4,980	5,425	2,697	4,650	5,301	4,710	5,022	56,824
Stern—													
Daily average	184	210	234	223	275	264	293	155	300	300	278	275	
Month	5,704	5,880	7,254	6,690	8,525	7,920	9,083	4,805	9,000	9,300	8,340	8,525	91,026
Miscellaneous—													
Daily average	926	941	921	953	962	969	1,025	466	1,062	1,153	978	966	
Month	28,706	26,348	28,551	28,590	29,822	29,070	31,775	14,446	31,860	35,743	29,340	29,946	344,197
GREENWOOD COUNTY:													
Atyeo, Pixley, Browning, Teeter, and Scott trend—													
Daily average	1,836	1,612	1,933	1,835	1,858	1,862	1,658	950	1,724	1,772	1,759	1,745	
Month	56,916	45,136	59,923	55,050	57,598	55,860	51,398	29,450	51,720	54,932	52,770	54,095	624,848
Burkett, Thrall, Polhamus, and Sallyards trend—													
Daily average	1,307	1,104	1,119	1,128	1,181	1,177	1,188	608	1,201	1,091	1,136	1,110	
Month	40,517	30,912	34,689	33,840	36,611	35,310	36,828	18,848	36,030	33,821	34,080	34,410	405,896
Demallorie-Sowder—													
Daily average	649	615	687	614	698	684	647	364	611	635	657	618	
Month	20,119	17,220	21,297	18,420	21,638	20,520	20,057	11,284	18,330	19,685	19,710	19,158	227,438
Dunaway—													
Daily average	213	222	227	218	230	231	231	127	210	221	209	213	
Month	6,603	6,216	7,037	6,540	7,130	6,930	7,161	3,937	6,300	6,851	6,270	6,603	77,578
Hamilton—													
Daily average	332	327	361	316	333	329	298	164	322	286	321	293	
Month	10,292	9,156	11,191	9,480	10,323	9,870	9,238	5,084	9,660	8,866	9,630	9,083	111,873
Lamont—													
Daily average	398	352	401	338	393	381	367	206	330	322	319	307	
Month	12,338	9,856	12,431	10,140	12,183	11,430	11,377	6,386	9,900	9,982	9,570	9,517	125,110
Madison—													
Daily average	579	573	609	605	549	562	567	351	492	561	540	549	
Month	17,949	16,044	18,879	18,150	17,019	16,860	17,577	10,881	14,760	17,391	16,200	17,019	198,729
Quincy—													
Daily average	881	943	1,004	798	830	818	696	421	878	830	715	760	
Month	27,311	26,404	31,124	23,940	25,730	24,540	21,576	13,051	26,340	25,730	21,450	23,560	290,756
Reese—													
Daily average	.....	168	175	159	159	162	143	66	144	126	147	133	
Month	.....	4,704	5,425	4,770	4,929	4,860	4,433	2,046	4,320	3,906	4,410	4,123	47,926
Seeley-Wick—													
Daily average	917	908	934	860	916	911	738	475	833	774	703	710	
Month	28,427	25,424	28,954	25,800	28,396	27,330	22,878	14,725	24,990	23,994	21,090	22,010	294,018
Virgil and North Virgil—													
Daily average	1,668	1,599	1,771	1,637	1,699	1,684	1,615	934	1,717	1,653	1,639	1,626	
Month	51,708	44,772	54,901	49,110	52,699	50,520	50,065	28,954	51,510	51,243	49,170	50,406	585,058
Wiggins—													
Daily average	.....	143	148	146	126	131	138	79	145	135	141	138	
Month	.....	4,004	4,588	4,380	3,906	3,930	4,278	2,449	4,350	4,185	4,230	4,278	44,578
Winterscheid—													
Daily average	688	701	681	674	709	707	703	345	823	720	684	702	
Month	21,328	19,628	21,111	20,220	21,979	21,210	21,793	10,695	24,690	22,320	20,520	21,761	247,256
Miscellaneous—													
Daily average	934	911	894	914	948	939	667	366	992	756	709	710	
Month	28,954	25,508	27,714	27,420	29,388	28,170	20,677	11,346	29,760	23,436	21,270	22,010	295,653
BARBER COUNTY:													
Daily average	201	193	210	251	225	316	267	157	289	328	363	316	
Month	6,231	5,404	6,510	7,530	6,975	9,480	8,277	4,867	8,670	10,168	10,890	9,796	94,798
CLARK COUNTY:													
Daily average	92	102	92	95	92	142	86	31	92	56	84	66	
Month	2,852	2,856	2,852	2,850	2,852	4,260	2,666	961	2,760	1,736	2,520	2,046	31,211
FINNEY COUNTY:													
Daily average	72	120	88	71	73	105	136	86	140	117	82	57	
Month	2,232	3,360	2,728	2,130	2,263	3,150	4,216	2,666	4,200	3,627	2,460	1,767	34,799
GRAHAM COUNTY:													
Daily average	.....	.....	26	43	58	72	63	60	75	68	78	132	
Month	.....	.....	806	1,290	1,798	2,160	1,953	1,860	2,250	2,108	2,340	4,092	20,657
KINGMAN COUNTY:													
Daily average	620	594	727	893	725	632	675	374	781	804	797	903	
Month	19,220	16,632	22,537	26,790	22,475	18,960	20,925	11,594	23,430	24,924	23,910	27,993	259,390
NESS COUNTY:													
Daily average	160	129	68	122	107	115	138	113	131	115	436	304	
Month	4,960	3,612	2,108	3,660	3,317	3,450	4,278	3,503	3,930	3,565	13,080	9,424	58,887
PAWNEE COUNTY:													
Daily average	95	152	167	160	181	116	128	69	104	111	74	100	
Month	2,945	4,256	5,177	4,800	5,611	3,480	3,968	2,139	3,120	3,441	2,220	3,100	44,257
PRATT COUNTY:													
Daily average	53	71	57	55	75	121	75	78	69	30	46	62	
Month	1,643	1,988	1,767	1,650	2,325	3,630	2,325	2,418	2,070	930	1,380	1,922	24,048
COFFEY COUNTY:													
Daily average	57	86	78	63	69	67	53	47	67	73	71	70	
Month	1,767	2,408	2,418	1,890	2,139	2,010	1,643	1,457	2,010	2,263	2,130	2,170	24,305
WESTERN ELK COUNTY:													
Daily average	540	697	886	780	772	793	701	409	725	717	680	686	
Month	16,740	19,516	27,466	23,400	23,932	23,790	21,731	12,679	21,750	22,227	20,400	21,266	254,897
ROOKS COUNTY:													
Daily average	661	587	600	726	853	774	646	675	693	811	661	472	
Month	20,491	16,436	18,600	21,780	26,443	23,220	20,026	20,925	20,790	25,141	19,830	14,632	248,314
SCOTT COUNTY:													
Daily average	957	842	708	851	906	822	766	386	678	571	472	528	
Month	29,687	23,576	21,948	25,530	28,086	24,660	23,746	11,966	20,340	17,701	14,160	16,368	257,748
RUSH COUNTY:													
Daily average	1,640	1,490	2,025	1,685	1,374	1,273	937	641	965	1,885	1,477	1,107	
Month	50,840	41,720	62,775	50,550	42,594	38,190	29,047	19,871	28,950	58,435	44,310	34,317	501,599
TREGO COUNTY:													
Daily average	188	181	171	160	169	144	149	67	156	144	133	110	
Month	5,828	5,068	5,301	4,800	5,239	4,320	4,619	2,077	4,680	4,464	3,990	3,410	53,796
MARION COUNTY:													
Daily average	907	901	854	994	989	962	1,128	621	1,115	1,140	1,421	1,372	
Month	28,117	25,228	26,474	29,820	30,659	28,860	34,968	19,251	33,450	35,340	42,630	42,532	377,329
EASTERN COUNTIES:													
Chautauqua, eastern Elk, Montgomery, Wilson, eastern Woodson, Franklin, Miami, Anderson, Linn, Allen, Neosho, and Labette—													
Daily average	5,884	7,091	7,976	7,625	7,922	8,003	7,276	4,294	8,792	8,893	8,616	8,810	
Month	182,404	198,548	247,256	228,750	245,582	240,090	225,556	133,114	263,760	275,683	258,480	273,110	2,772,333
Daily average	150,903	152,234	166,998	168,827	165,572	168,229	170,121	100,089	160,525	172,384	183,027	186,252	162,090
Month	4,677,993	4,262,552	5,176,938	5,064,810	5,132,731	5,046,870	5,273,751	3,102,759	4,815,750	5,343,904	5,490,810	5,773,812	59,162,680
Total 1938	5,472,151	4,659,373	5,174,024	4,968,360	4,614,784	4,523,280	4,890,405	5,020,429	4,685,100	4,621,728	4,563,480	4,940,976	58,134,090
Total 1937	5,244,673	5,236,644	5,866,936	5,827,230	6,253,785	5,908,470	6,228,861	6,062,763	5,921,190	5,820,022	5,344,650	5,461,208	69,158,432
Total 1936	4,343,751	4,002,348	4,675,296	4,835,370	4,754,687	4,442,040	4,839,441	5,160,601	4,917,180	4,995,805	4,816,320	5,301,651	57,084,490
Total 1935	4,189,340	4,094,412	4,623,154	4,373,670	4,610,940	4,436,880	4,710,884	4,462,140	4,411,260	4,702,979	4,279,920	4,468,867	53,364,446

in Barton County were so designated, as were the Burnett-Lansing pool, Ellis County; Buhler-Viola pool, Reno County, and East Big Creek-Lansing pool, Russell County.

Much transpired by the time the committee next met early in July, as evidenced by the following actions: The Bow Creek pool, Phillips County; North Atherton pool, Russell County; Pospishel pool, Barton County; Hodge pool, Rice County, and the Darien pool, Cowley County, were named. A new producing area in the Silica district, Rice County, was named Silica-Lansing. A Stafford County discovery was designated the Max-Lansing pool. Extensions included Geneseo, Chase, Silica, Haferman, Midway and Stumps in Rice County; Bornholdt pool, McPherson County; Gurney area, Russell County, and the Pawnee Rock pool, Pawnee County.

Discovery areas named at the August meeting included South Wherry pool, Rice County, and West Trapp pool, Russell County. Outpost producers were designated as extensions to the Prusa area, Barton County; Morel area, Graham County; Silica and Midway fields, Rice County; Gorham, Vaughn and Coralena pools, Russell County; and South Sittner pool, Stafford County. The Letsch pool was joined to the Hall pool, Russell County. The South Stoltenberg pool was included in the Stoltenberg pool, Ellsworth County.

One new pool, the North Prusa in Barton County, was named at the September meeting. New pay discoveries were designated as Bloomer-conglomerate, Ellsworth County, and North Fairfield-Arbuckle, Russell County. Pools extended included Kraft and West Ellinwood, Barton County; Chase and Bornholdt, Rice County; East Big Creek, Russell County, and Cairo gas field, Pratt County. Several fields were consolidated: In Russell County, Coralena was included in the Trapp field, Michel and South Gurney were added to Gurney pool, and North Balta was joined with Atherton. The big Silica field was further enlarged to include South Silica and Ellinwood pools in Barton County, giving the field a spread of 21,480 acres. In Ellis County, Cress, Bemis and Shutts were joined to form the Bemis-Shutts field. The Marchand pool was added to the Clawson pool in Barton County. The St. John pool in Stafford County was extended.

New Areas Opened

Five new pools were named at the December 1 meeting, as follows: Krier, Harzman and Feltes in Barton County; Rahn in Cowley County, and East Orth in Rice County. The Kraft and Silica fields in Barton County, Frog Hollow pool in Cowley County and Walter area in Ellis County were extended. The South Wherry pool was consolidated with Wherry in Rice County, and the big Trapp field was expanded in Russell County to take in the Schneider pool.

At the final meeting of the year, the North Bornholdt pool in McPherson County and West Bredfeldt pool in Rice County were named. Gas areas in which oil were found were named the Cairo oil and gas field in Pratt County and Lyons oil and gas field in Rice County. New horizons in old areas were designated the Hall-Arbuckle pool, Russell County, and Snider-Simpson pool, Stafford County. Areas extended included the Stoltenberg pool, Ellsworth County; Krier pool, Barton County; Westhusin pool, Rooks County, and South Snider pool, Stafford County. The West Marchand pool was annexed to the Clawson pool, and the Wolf pool was added to the West Ellinwood pool in Barton County. In Rice County, the Hodge pool was joined with the Bornholdt field; the Chase field was expanded to take in the Cramm and Soeken pools,

KANSAS

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas
Atchison	1	0	1	0
Barber	11	786	3	6
Barton	151	48,645	45	3
Butler	66	1,618	22	3
Chase	2	0	2	0
Coffey	4	2	3	0
Comanche	1	0	1	0
Cowley	126	71,747	34	9
Dickinson	1	0	1	0
Douglas	3	5	2	0
Ellis	112	61,978	10	0
Ellsworth	38	13,281	7	0
Finney	1	214	0	0
Franklin	2	0	2	0
Geary	1	0	1	0
Graham	4	2,018	0	0
Grant	4	0	0	4
Gray	1	0	1	0
Greenwood	54	770	21	3
Harvey	13	2,798	4	0
Haskell	2	0	0	2
Jefferson	2	0	2	0
Johnson	31	186	9	7
Kingman	7	857	3	1
Kiowa	1	0	1	0
Marion	20	3,110	4	0
McPherson	50	11,595	13	0
Meade	1	0	1	0
Miami	2	0	0	2
Montgomery	2	100	1	0
Ness	1	260	0	0
Norton	1	173	0	0
Osage	1	0	1	0
Ottawa	1	0	1	0
Pawnee	2	118	1	0
Phillips	1	827	0	0
Pratt	21	1,275	1	17
Reno	17	2,860	7	0
Rice	203	61,822	35	3
Rooks	14	3,393	2	0
Rush	2	280	1	0
Russell	237	97,711	25	1
Saline	1	0	1	0
Scott	1	749	0	0
Sedgwick	13	683	10	1
Shawnee	1	0	1	0
Sherman	2	0	0	2
Stafford	89	31,723	12	0
Stevens	5	0	0	5
Sumner	12	687	4	0
Woodson	19	123	13	3
Total	1,358	422,394	309	72

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	69	22,132	18	2
February	92	24,414	25	3
March	86	27,423	21	5
April	79	31,309	21	3
May	93	28,075	19	4
June	139	42,597	29	7
July	128	48,534	29	3
August	143	35,815	37	7
September	131	44,411	27	16
October	100	29,832	22	3
November	177	50,884	37	17
December	121	36,968	24	2
Total 1939	1,358	422,394	309	72
Total 1938	1,573	643,863	402	63
Difference	215	221,469	93	9
Total 1937	2,590	1,479,293	606	117
Total 1936	1,721	965,777	446	61
Total 1935	1,210	845,522	281	39
Total 1934	835	300,789	221	22
Total 1933	540	193,736	134	16
Total 1932	572	193,139	188	21
Total 1931	470	144,921	129	112
Total 1930	1,036	288,296	423	168

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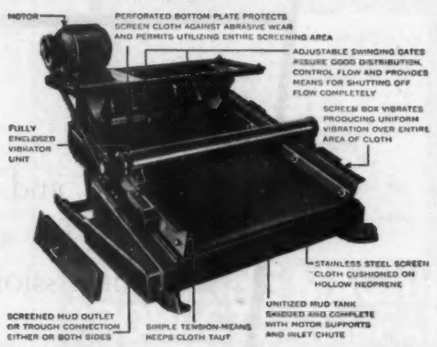
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East Orth was added to the Orth pool. Consolidations in Russell County saw the Balta pool joined with Atherton, the Benso pool became a part of the Gorham field, and South Letsch and Southwest Letsch were added to the Hall field.

Activity in the Basin

In addition to the areas considered by the committee, several new producing areas were opened in the stripper districts of eastern Kansas.

The search for oil in the Forest City basin was climaxed late in the year with a discovery near Falls City, in southeastern Nebraska, but the northeastern Kansas sector of the basin is yet to be proven an oil country. Bartlesville-sand discoveries in Johnson County were said by some to be on the south flank of the basin, but were more generally considered as not being a part of the basin. Failures were completed in Atchison, Douglas, Jefferson and Shawnee counties. Slimhole tests to obtain geological information were drilled in Atchison and Brown counties, but information was not given out. Late in the year a wildcat in Jefferson County found gas in Bartlesville sand, drilled deeper, had a fishing job and were expected to plug back and complete as a gas well. That, as yet, is the only discovery in the Kansas sector of the basin. Many northeastern Kansas leases taken during the early days of the Forest City basin lease boom were relinquished, but considerable new leasing followed the nearby discovery of oil in Nebraska. Several proposed northeastern Kansas tests were in the formative stage as the year ended.

RESULTS OF WILDCAT DRILLING

County—	Oil and gas wells	Dry holes	Average depth of dry holes
Atchison	0	1	2,790
Barber	1 (gas)	1	4,850
Barton	16 (1 gas)	17	3,434
Butler	2	11	2,772
Coffey	0	2	1,935
Chase	0	1	3,065
Comanche	0	1	5,808
Cowley	1	20	3,033
Dickinson	0	1 ✓	3,262
Douglas	0	2	1,428
Ellis	2	5	3,476
Ellsworth	2	2	3,358
Franklin	0	2	1,018
Geary	0	1 ✓	2,239
Graham	1	0	0
Gray	0	1	6,505
Greenwood	2 (1 gas)	7	1,744
Harvey	0	2	3,535
Haskell	1 (gas)	0	0
Jefferson	0	2	2,833
Johnson	5 (3 gas)	3	810
Kingman	0	1	4,799
Kiowa	0	1	4,799
Labette	1	0	0
Leavenworth	0	1	345
Lyon	0	1	2,333
Marion	1	3 ✓	2,585
McPherson	1	6 ✓	3,743
Meade	0	1	1,435
Montgomery	0	1	1,717
Norton	1	0	0
Osage	0	1	1,650
Ottawa	0	1 ✓	4,135
Pawnee	0	1	3,945
Pratt	0	1	4,364
Reno	0	2	4,000
Rice	14	16	3,418
Rooks	0	2	3,566
Russell	7	8	3,361
Saline	0	1 ✓	3,632
Sedgwick	1	4	2,709
Shawnee	0	1	2,689
Sherman	2 (2 gas)	0	0
Stafford	3	6	3,854
Sumner	0	3	3,752
Woodson	1 (gas)	6	1,614
Total	65	150	

Average depth of oil and gas wells, feet	2,925
Average depth of dry holes, feet	3,047
Percentage of oil wells	25.58
Percentage of gas wells	4.65
Percentage of dry holes	69.77

WORLD PRODUCTION

(Continued from Page 81)

Specifically, Trinidad is a part of the British West Indies, but the island may be considered as a part of South America from a standpoint of operating conditions. Financial and technical facilities of the three largest operating organizations of British parentage have been combined in an exploratory campaign of much importance to the petroleum future of Trinidad. D'Arcy Exploration Co., United British Oilfields of Trinidad, Ltd., and Trinidad Leaseholds, Ltd., have combined in the establishment of Trinidad Northern Areas, Ltd., which is now drilling two deep wildcat tests north of the Central Range. The Central Range has been long considered the northern limit of prospective oil territory, partly because of probable depths to which drilling would be required to reach most likely horizons.

Trinidad's production climbed to a new peak of 19,285,000 bbl. in 1939, a daily average of 52,781 bbl. Almost half of Trinidad's production comes from the Fyzabad structure. Drilling last year was largely concentrated between the Forest Reserve, Los Bajos, and Palo Seco fields where a fault line has been proved productive, practically linking the three fields which were formerly separated by unexplored territory.

Importance of Trinidad as a source of petroleum has been expanded by the European war, since it is the largest producer among provinces, protectorates, and possessions of the United Kingdom. Trinidad production has a particular appeal in the home country because of existing exchange conditions.

Importance of two of the world's largest refineries on the Caribbean Sea islands of Curacao and Aruba was emphasized recently. Reports reached this country that the Netherland Government is prepared to ask the United States to accept protection over the islands in event the homeland is drawn into the European war. Refineries on Curacao and Aruba process 70 to 85 per cent of the crude oil produced in Venezuela.

Improvements and additions are being made constantly to both the Lago Oil & Transport Co., Ltd., and the Curacaosche Petroleum Industrie Maatschappij's (Shell) refineries on Aruba and Curacao, respectively, to improve the quality and increase the quantity of the more desirable products that can be obtained from the available crude.

Rumania

Another slump in Rumanian production of 2,418,200 bbl., lowering the 1939 total to 46,565,000 bbl., was one of the outstanding changes in Europe. Fluctuations in Rumanian production bear greater significance than those in any other European country because of the substantial exportable surplus. Immediately before and since war was declared, Germany's position as a purchaser has been dominant. Prices for Rumanian petroleum have more than doubled since war was declared, and this factor alone has placed a new premium on exploration and exploitation.

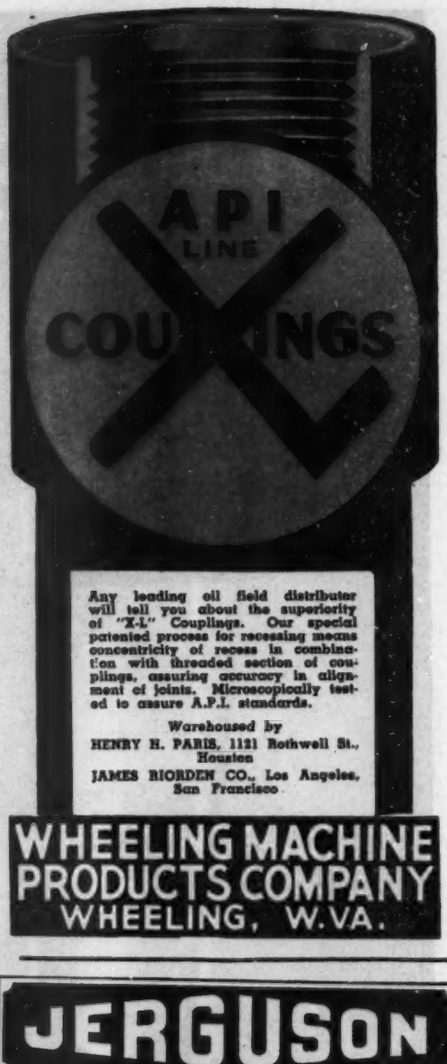
Sharp curtailment of purchases by European customers during the last 4 months was chiefly responsible for a decline in Mexico's petroleum production last year. Refining equipment was permitted to deteriorate, and exports have shifted predominantly to crude oil. Mexico's Supreme Court held that the expropriation law and decree issued March 18, 1938, were valid and thereby blighted the hope of private companies in the fight to recover their properties.

Rise of Saudi Arabia from an obscure ranking to the eighteenth largest producer in the world featured development in the Near East last year along with a comparable increase in Egypt. Saudi Arabia's single developed producing field, Dammom dome, was given an outlet to world markets by completion of a 10-in. pipe line 48 miles away to a shipping terminal at Ras Tanura.

The Ras Gharib field, opened in 1938 by Anglo-Egyptian Oilfields, Ltd., accounted for the sharp climb in Egypt's crude production. Exploration efforts were pushed to the drilling stage by Socony-Vacuum, Texas Co., and by other participants, including Standard of New Jersey subsidiaries.

Despite failure of efforts to open new fields in the Netherland East Indies, production from that source increased nearly 8 per cent from previously proven fields.

Discovery of oil in New Guinea has been assured at shallow depths, and deeper exploration is now in progress. Deep drilling has so far failed to develop production in New Zealand, but efforts are continuing.



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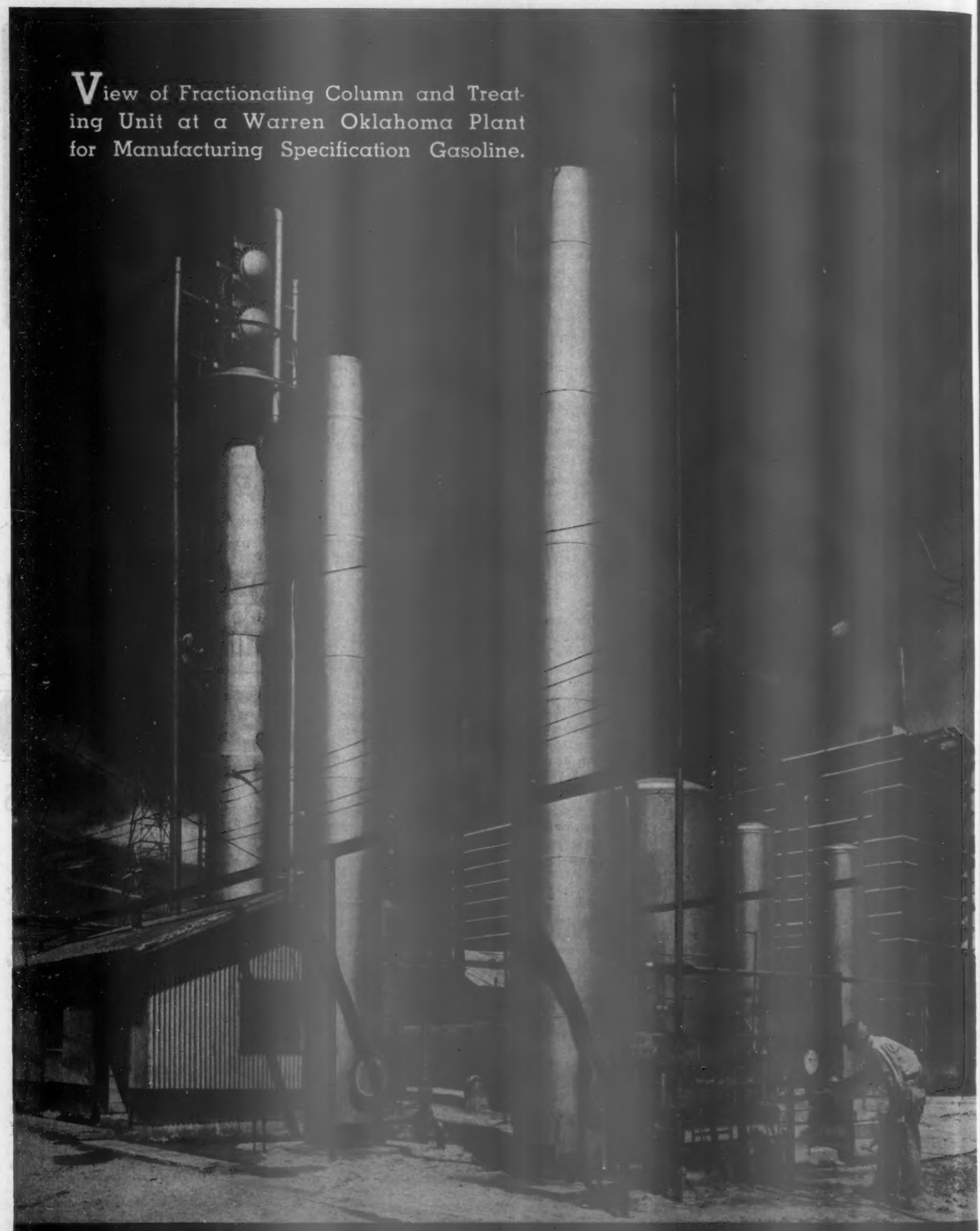

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Gulf Coast Fields

(Continued from Page 92)

102 bbl. of 39-gravity oil per day through a 9/64-in. choke. The well was drilled on a farm-out lease from Sun Oil Co.

Stanolind Oil & Gas Co. opened the Martha field, Liberty County, with No. 1 Flowers. The well was drilled to 9,109 ft., and production was obtained by perforating casing in the Yeguaensis at 8,104-08 ft. On a 15-hour gage it flowed 150 bbl. of 41-gravity oil through a 5/32-in. choke. Two dry holes and three additional producers have been completed on the structure.

In Wharton County, Texas Co. opened the Hilje field with the completion of No. 1 Peters. Production is from the Frio sand through perforated casing at 5,220-30 ft. Initial production was 24 bbl. of 25-gravity oil daily, flowing through a ⅛-in. choke. Tubing pressure was 1,400 lb. and casing pressure 1,675 lb. The field is located in E.T.R.R. Survey 101, east of Louise field.

In Chambers County J. R. Turnbull completed No. 1 Kirby Petroleum Co. to open the Cedar Bayou field, about 2½ miles northwest of the South Cotton Lake field. Production is from the Frio sand at 6,418-31 ft. Additional acreage was opened for development east of the South Cotton Lake field by Salt Dome Oil Corp.'s No. 1 Williams, completed in the Frio-sand section at 6,494-6,515 ft.

The search for Wilcox production in proven fields located along the Conroe trend was successful at the Ace field, Polk County, as Peyton Brothers completed No. 3-B Kirby Lumber Co. for an initial production of 493 bbl. daily through a ¼-in. choke. The hole was drilled to a total depth of 7,788 ft., and the well was completed through perforations at 7,748-62 ft. Three additional producers have been completed in the deep pay to extend production to the south and northeast.

The opening of prolific production from the Vicksburg formation on the north flank of the old Thompson field, Fort Bend County, resulted in an interesting deep wildcatting play for the county. The play was created by the completion of H. M. Naylor's No. 1 O. F. Museiman. Sand was topped at 7,703 ft., and the well was completed at a total depth of 7,899 ft. for an initial production of 45 bbl. of 35.7-gravity oil per hour flowing through a ¼-in. choke. This is the deepest production in the county and such fields as Sugarland, Blue Ridge, and several old fields received deep tests in search of this type of production.

West of Rosenberg, Fort Bend County, H. C. Cockburn opened the Rosenberg field with the completion of No. 1 Dezerzanowski as a distillate producer. The well topped the sand section in the Yegua formation

(Continued on Page 145)

GULF COAST TEXAS—Lower District (Continued)

Daily Average and Monthly Production in 1939

(Continued from Page 95)

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
WEST SAXET:													
Daily average	3,479	3,576	3,588	3,761	3,754	3,200	3,693	2,141	3,626	4,250	2,877	3,343	
Month	107,849	100,128	111,228	112,830	116,374	96,000	114,483	66,371	69,780	131,750	86,310	103,633	1,216,736
MINNIE BOCK:													
Daily average	.....	.....	.....	.....	.....	70	267	144	666	762	727	747	
Month	.....	.....	.....	.....	.....	2,100	8,277	4,464	19,980	23,622	21,810	23,157	103,410
BEN BOLT:													
Daily average	.....	.....	.....	.....	.....	45	325	231	504	655	680	761	
Month	.....	.....	.....	.....	.....	1,350	10,175	7,161	15,120	20,305	20,400	23,591	98,102
REYNOLDS:													
Daily average	.....	.....	.....	.....	.....	.....	115	365	743	848	846	925	
Month	.....	.....	.....	.....	.....	.....	3,565	11,315	22,290	26,288	25,380	28,675	117,513
Daily average	128,454	130,717	141,313	138,876	132,945	121,108	130,847	81,614	132,086	163,293	107,865	124,421	125,062
Total 1939	3,982,066	3,660,090	4,380,716	4,166,280	4,121,285	3,633,240	4,056,262	2,530,030	3,962,580	4,062,088	3,235,950	3,857,067	45,647,654
Total 1938	3,590,327	3,254,556	3,727,463	3,684,780	3,545,067	3,362,970	3,983,715	4,206,791	3,624,120	3,872,379	3,305,150	3,659,760	43,817,088
Total 1937	3,139,680	3,283,392	3,869,699	3,655,650	3,960,312	3,744,420	2,356,087	2,873,948	2,778,990	2,659,427	2,486,340	2,625,625	37,433,570
Total 1936	1,616,375	1,592,825	1,868,618	1,963,140	2,169,907	2,159,400	2,263,899	2,374,662	2,489,190	2,714,422	2,518,449	2,766,750	26,497,637

Miscellaneous pools and their total production in the 12-month period were: Alfred, 14,027 bbl.; Angelita, 4,349 bbl.; Bandera, 1,499 bbl.; Bonnieview, 4,855 bbl.; Chapman Ranch, 1,372 bbl.; East Telferner, 8,039 bbl.; Foley, 8,044 bbl.; Hordes Creek, 8,545 bbl.; Kingsville, 14,308 bbl.; Las Mestenas, 28,270 bbl.; London, 11,197 bbl.; Lucas, 20,792 bbl.; Magnolia City, 17,022 bbl.; McAllen, 4,846 bbl.; McNeil, 19,128 bbl.; Mercedes, 23,102 bbl.; Normanna, 9,283 bbl.; North Lucas, 7,240 bbl.; North McFaddin, 8,804 bbl.; Port Lavaca, 3,093 bbl.; Riverside, 29,929 bbl.; Sandia, 767 bbl.; Sarco, 273 bbl.; Sinton, 4,770 bbl.; Slick, 2,945 bbl.; Strauch, 921 bbl.; Tulsita, 3,560 bbl.; Voss, 2,670 bbl.; White Point, 18,961 bbl.; White Creek, 28,607 bbl.; North Luby, 9,879 bbl.; Camada, 2,290 bbl.; La Gloria, 8,319 bbl.; Wade City, 3,128 bbl.; Robstown, 6,915 bbl.; Cologne, 1,182 bbl.; East Mathis, 750 bbl.; Victoria. 122 bbl.; total, 343,803 bbl.

LOUISIANA GULF COAST DISCOVERIES IN 1939

Pool, parish, company and farm name—	Date of comp.	S-T-R	Producing formation	Producing depth	Initial production	No. prod. wells Jan. 1, 1940
Batataria, Jefferson, California Co.'s No. 1 Rutley	11-7	2-16s-23e	Miocene	8,204-14	7 bbl. per hour, ¼-in. choke	1
Eola, Avoyelles, Sid Richardson's No. 1 Haas Inv. Co.	1-24	7- 2s- 3e	Wilcox	8,445-8,550	275 B.P.D., ¼-in. choke	42
Grand Lake, Cameron, Superior Oil Co.'s No. 1 State	5-15	24-13s- 4w	Miocene	8,365-95	384 B.P.D., 14/64-in. choke	4
Happtown, Iberville, Shell Oil Co., Inc.'s No. 1 Iberville Ld. Co.	11-27	86- 8s- 7e	Miocene	9,745-58	1,013 B.P.D., ¼-in. choke	1
Kenilworth, St. Bernard, Vendome Pet. Corp.'s No. 1 Kenilworth	5-15	59-13s-14e	Miocene	10,600-10	230 B.P.D., 13/64-in. choke	1
La Pice, St. James, Shell Oil Co., Inc.'s No. 1 Schnexnayder	6-13	38-12s-15e	Miocene	10,910-75	47 bbl. dist., 10/64-in. choke	1
La Place, St. John the Baptist, Pan American Oil Co.'s No. 1 Mill	12-4	12-11s- 7e	Miocene	8,115-21	5½ bbl. dist. per hour, ¼-in. choke	1
La Fourche Crosing, La Fourche, J. Perry Scranton's No. 1 Martinez	9-30	132-15s-17e	Miocene	10,128-32	312 B.P.D., 5/32-in. choke	1
North Elton, Allen, Bel Oil Corp.'s No. 1 J. A. Bel	6-20	22- 6s- 3w	Marginulina	7,272-92	Distillate, ⅛-in. choke	1
Paradis, St. Charles, Texas Co.'s No. 1 Paradis	6-30	39-14s-20e	Miocene	9,895-9,915	120 bbl. dist., ¼-in. choke	2
Perkins, Calcasieu, Humble O. & R. Co.'s No. 1 Edgewood Ld. Co.	8-10	32- 7s-10w	Marginulina	7,038-42	Gas well	1
Plumb Bob, St. Martin, Texas Co.'s No. 12 St. Martin Ld. Co.	9-10	21- 8s- 7e	Miocene	8,570-90	302 B.P.D., 12/64-in. choke	1
Vermilion Bay, Iberia, Texas Co.'s No. 3-B State	7-30	20-15s- 6e	Miocene	10,131-239	300 B.P.D., 10/64-in. choke	1

COASTAL LOUISIANA

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
ABBEVILLE:													
Daily average	340	366	383	391	426	425	566	446	640	539	661	627	
Month	10,540	14,248	11,873	11,730	13,206	12,750	17,546	13,828	19,200	16,709	19,830	19,437	176,897
BANCROFT:													
Daily average	1,542	1,689	1,731	1,951	2,567	2,194	2,295	1,804	2,822	3,040	3,811	3,954	
Month	47,802	47,292	53,661	58,503	79,577	65,820	71,145	55,924	84,660	94,240	114,330	122,574	895,555
BATEMAN LAKE:													
Daily average	360	406	348	329	452	868	770	656	771	1,028	1,050	1,028	
Month	11,160	11,368	10,788	9,870	14,012	26,040	23,870	20,336	23,130	31,868	31,500	31,868	245,810
BAYOU DES ALLEMONDS:													
Daily average	110	167	110	104	65	32	68	61	173	388	306	356	
Month	3,410	4,676	3,410	3,120	2,015	960	2,108	1,891	5,190	12,028	9,180	11,036	59,024
BAYOU MALLET													
Daily average	68	243	290	255	254	362	251	165	267	253	241	243	
Month	2,108	6,804	8,990	7,650	7,874	10,860	7,781	5,115	8,010	7,843	7,230	7,533	87,798
BAY ST. ELAINE:													
Daily average	560	537	491	1,618	533	240	227	270	215	206	258	305	
Month	17,360	15,036	15,221	48,540	16,523	7,200	7,037	8,370	6,450	6,386	7,740	9,455	165,318
BIRD ISLAND (Grand Bay):													
Daily average	721	1,210	1,200	1,158	1,188	1,151	1,914	1,110	1,512	1,929	1,695	1,486	
Month	22,351	33,880	37,200	34,740	36,828	34,530	59,334	34,410	45,360	59,799	50,850	46,066	495,348
BLACK BAYOU:													
Daily average	2,380	2,331	2,230	3,002	2,943	2,881	3,004	2,027	2,666	2,903	2,836	2,907	
Month	73,780	65,268	69,130	90,060	91,233	86,430	93,124	62,837	79,980	89,993	85,080	90,117	977,032
BOSCO:													
Daily average	4,908	4,910	5,002	5,039	5,165	4,908	4,730	2,799	4,465	4,473	4,595	6,652	
Month	152,148	137,480	155,062	151,170	160,115	147,240	146,630	86,769	133,950	138,663	137,850	206,212	1,753,289
CAILLOU ISLAND:													
Daily average	14,850	14,860	14,875	14,850	14,868	14,846	14,850	4,845	5,725	7,039	6,785	6,565	
Month	460,350	416,080	461,125	445,500	460,908	445,380	460,350	150,195	171,750	218,209	203,550	203,515	4,096,912
CAMERON MEADOWS:													
Daily average	2,380	2,331	2,230	2,375	2,266	2,524	2,278	1,984	2,215	2,220	2,179	2,018	
Month	73,780	65,268	69,130	71,250	70,246	75,720	70,618	61,504	66,450	68,820	65,370	62,558	820,714
CHACAHOULA:													
Daily average	915	828	721	814	1,283	1,084	902	821	666	1,139	1,136	974	
Month	28,365	23,184	22,351	24,420	39,773	32,520	27,962	25,451	19,980	35,309	34,080	30,194	343,589
CHARENTON:													
Daily average	4,356	4,847	6,063	6,893	6,326	6,827	5,660	4,733	7,456	8,258	9,056	10,727	
Month	135,036	135,716	187,953	206,790	196,106	204,810	175,460	146,723	223,680	255,998	271,680	332,537	2,472,489

(Continued on Next Page)

COASTAL LOUISIANA (Continued)

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
CHENEYVILLE:													
Daily average	518	464	445	454	500	709	613	457	1,074	1,842	2,065	2,658	
Month	16,058	12,992	13,888	13,620	15,500	21,270	19,003	14,167	32,220	57,102	61,950	82,398	360,168
CHOCTAW:													
Daily average	1,439	1,285	1,387	1,384	1,468	1,154	1,208	725	939	994	946	768	
Month	44,609	35,980	42,997	41,520	45,508	34,620	37,448	24,475	28,170	30,814	28,380	24,738	419,259
CREOLE:													
Daily average	1,280	1,441	1,480	1,393	1,485	1,163	1,798	1,128	1,798	1,915	1,703	1,786	
Month	39,680	40,348	45,880	41,790	46,035	34,890	55,738	34,968	53,940	59,365	51,090	55,366	559,090
CROWLEY, NORTH:													
Daily average	1,747	1,900	1,900	2,100	2,369	2,554	2,500	1,501	2,500	2,645	2,682	2,522	
Month	54,157	53,200	58,900	63,000	73,439	76,620	77,500	46,531	75,000	81,995	80,460	78,182	818,984
DARROW:													
Daily average	3,098	3,133	3,150	3,150	3,160	3,142	3,150	1,609	2,280	2,624	2,786	2,419	
Month	96,038	87,724	97,650	94,500	97,960	94,260	97,650	49,879	68,400	81,344	83,580	74,989	1,023,974
DELARGE:													
Daily average	88	88	97	103	104	108	110	96	91	49	.....	110	
Month	2,728	2,464	3,007	3,090	3,224	3,240	3,410	2,976	2,730	1,519	.....	3,410	31,798
DOG LAKE:													
Daily average	631	532	494	463	346	449	696	515	645	750	720	840	
Month	19,561	14,896	15,314	13,890	10,726	13,470	21,576	15,965	19,350	23,250	21,600	26,040	215,638
EAST HACKBERRY:													
Daily average	5,483	5,777	5,960	5,728	5,563	5,540	5,591	4,139	5,336	5,221	5,077	5,424	
Month	169,973	161,756	184,760	171,810	172,453	156,300	173,321	128,309	160,080	161,851	152,310	168,144	1,961,097
EDGERLY:													
Daily average	153	157	153	142	147	141	136	151	170	147	153	239	
Month	4,743	4,396	4,743	4,260	4,557	4,230	4,216	4,681	5,100	4,557	4,890	7,409	57,782
EOLA:													
Daily average	45	150	664	232	465	1,026	2,668	1,903	4,077	6,110	6,726	7,476	
Month	1,395	4,200	20,584	6,960	14,415	30,780	82,708	58,993	122,310	189,410	201,780	231,756	965,291
GARDEN ISLAND BAY:													
Daily average	1,566	1,313	1,404	1,264	1,379	1,671	1,818	1,347	1,728	1,867	1,907	1,991	
Month	48,546	36,764	43,524	37,920	42,749	50,130	56,358	41,757	51,840	57,877	57,210	61,721	586,396
GIBSON:													
Daily average	3,000	3,091	3,007	3,013	2,809	2,992	3,052	2,008	3,254	3,800	3,795	3,294	
Month	93,000	86,548	93,217	90,390	87,079	89,760	94,612	62,248	97,620	117,800	113,850	102,114	1,128,238
GILLIS:													
Daily average	7,308	6,695	6,277	6,350	6,099	5,954	6,383	5,121	5,485	5,434	5,297	5,793	
Month	226,548	187,460	194,587	190,500	189,069	178,620	197,873	158,751	164,550	168,454	158,910	179,273	2,194,595
GOLDEN MEADOW:													
Daily average	192	139	130	105	163	230	363	441	2,719	5,401	6,191	6,655	
Month	5,952	3,892	4,030	3,150	5,053	6,900	11,253	13,671	81,570	167,431	185,730	206,305	694,937
GUEYDAN:													
Daily average	426	428	418	420	425	407	421	274	428	425	423	424	
Month	13,206	11,984	12,958	12,600	13,175	12,210	13,051	8,494	12,840	13,175	12,690	13,144	149,527
GUEDAN, WEST:													
Daily average	166	177	130	112	109	104	313	316	648	709	687	594	
Month	5,146	4,956	4,030	3,360	3,379	3,120	9,703	9,796	19,440	21,979	20,610	18,414	123,933
HORSE SHOE BAYOU:													
Daily average	567	563	547	587	809	810	720	892	1,097	1,094	1,039	949	
Month	17,577	15,764	16,957	17,610	25,079	24,300	22,320	27,652	32,910	33,914	31,170	29,419	294,672
IOWA:													
Daily average	14,298	14,037	12,754	14,185	13,965	13,120	13,927	7,539	9,932	10,652	10,550	10,877	
Month	443,238	393,036	395,374	425,550	432,915	393,600	431,737	233,709	297,960	330,212	316,500	337,187	4,431,018
JEANERETTE:													
Daily average	6,278	6,041	5,939	5,824	5,918	5,752	5,293	2,460	3,690	3,577	3,961	3,617	
Month	194,618	169,148	184,109	174,720	183,458	172,560	164,083	76,260	110,700	110,887	118,830	112,127	1,771,500

(Continued on Next Page)

AMERADA PETROLEUM CORPORATION

>—<

PRODUCERS OF CRUDE OIL

>—<

120 Broadway
New York, N. Y.

Beacon Bldg.
Tulsa, Oklahoma

COASTAL LOUISIANA (Continued)

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
JEFFERSON ISLAND:													
Daily average	194	189	173	167	170	378	530	336	537	501	661	867	
Month	6,014	5,292	5,363	5,010	5,270	11,340	16,430	10,416	16,110	15,531	19,830	26,877	143,483
JENNINGS:													
Daily average	27,001	27,810	28,059	26,124	24,778	24,850	27,939	14,000	19,979	19,416	19,858	17,830	
Month	837,031	778,680	869,829	783,720	768,118	745,500	866,109	434,000	599,370	601,896	595,740	552,730	8,432,723
LAFITTE:													
Daily average	15,000	15,000	15,002	14,799	14,881	14,987	15,000	8,253	8,992	11,015	11,869	11,432	
Month	465,000	420,000	465,062	443,970	461,311	449,610	465,000	255,843	269,760	341,465	356,070	354,392	4,747,483
LAKE BARRE:													
Daily average	1,296	1,213	1,137	1,122	1,000	873	928	847	857	816	788	734	
Month	40,176	34,064	35,247	33,660	31,000	26,190	28,768	26,257	25,710	25,296	23,640	22,754	352,762
LAKE LONG:													
Daily average	1,145	1,184	1,149	1,105	1,098	1,095	1,182	866	1,290	1,424	1,363	1,343	
Month	35,495	33,152	35,619	33,150	34,038	32,850	36,642	26,946	38,700	44,144	40,890	41,633	433,259
LAKE PELTO:													
Daily average	635	904	881	808	829	688	1,097	804	1,400	1,592	1,422	1,428	
Month	19,685	25,312	27,311	24,240	25,699	20,640	34,007	24,924	42,000	49,352	42,660	44,268	380,098
LAKE WASHINGTON:													
Daily average	762	648	720	771	796	772	798	703	718	735	709	697	
Month	23,622	18,144	22,320	23,130	24,676	23,160	24,738	21,793	21,540	22,785	21,270	21,607	268,785
LEEVILLE:													
Daily average	4,196	4,261	4,138	4,071	4,017	3,982	3,797	3,052	3,135	2,939	2,926	2,885	
Month	130,076	119,308	128,278	122,130	124,527	119,460	117,707	94,612	94,050	91,109	87,780	89,435	1,318,472
LOCKPORT:													
Daily average	1,092	1,141	1,242	1,112	1,100	1,181	1,083	909	992	1,089	901	785	
Month	38,852	31,948	38,502	33,360	34,100	35,430	33,573	28,179	29,760	33,759	27,030	24,335	383,828
NEW IBERIA:													
Daily average	14,502	13,380	12,624	12,522	12,738	12,616	12,284	7,662	11,062	10,354	9,463	9,344	
Month	449,562	374,640	391,344	375,660	394,878	378,480	380,804	237,522	331,860	320,974	283,890	289,664	4,209,278
PORT BARRE:													
Daily average	1,337	1,521	1,563	1,827	1,648	1,815	1,924	2,039	2,360	2,414	2,248	2,193	
Month	41,447	42,588	48,453	54,810	51,088	54,450	59,644	63,209	70,800	74,834	67,440	67,983	696,746
POTASH:													
Daily average	51	200	199	200	314	394	496	154	600	600	578	439	
Month	1,581	5,600	6,169	6,000	9,734	11,820	15,376	4,774	18,000	18,600	17,340	13,609	128,603
QUARANTINE BAY:													
Daily average	1,385	1,482	1,606	2,121	2,254	2,707	3,049	1,468	2,198	3,683	3,632	3,661	
Month	42,935	41,496	49,786	63,630	69,874	81,210	94,519	45,508	65,940	114,173	108,960	113,491	891,522
RACELAND:													
Daily average	1,466	1,545	1,524	1,588	1,649	1,843	1,652	671	1,071	1,250	1,268	954	
Month	45,446	43,260	47,244	47,640	51,119	55,290	51,212	20,801	32,130	38,750	38,040	29,574	500,506
ROANOKE:													
Daily average	2,710	2,723	2,633	2,473	2,455	2,473	2,445	1,277	1,754	1,676	1,840	1,623	
Month	84,010	76,244	81,623	74,190	76,105	74,190	75,795	39,587	52,620	51,956	55,200	50,313	791,833
ROANOKE, SOUTH:													
Daily average	355	593	585	712	717	658	611	699	950	1,223	1,222	1,196	
Month	11,005	16,604	18,135	21,360	22,227	19,740	18,941	21,669	28,500	37,913	36,660	37,076	289,830
SORRENTO:													
Daily average	442	414	352	321	323	294	294	260	257	257	221	263	
Month	13,702	11,592	10,912	9,630	10,013	8,820	9,114	8,060	7,710	7,967	6,630	8,153	112,303
SOUTH HOUMA:													
Daily average	252	225	215	228	236	241	567	446	590	597	547	526	
Month	7,812	6,300	6,665	6,840	7,316	7,230	17,577	13,826	17,700	18,507	16,410	16,306	142,489
STARKS:													
Daily average	449	449	440	425	447	449	461	438	480	463	440	434	
Month	13,919	12,572	13,640	12,750	13,857	13,470	14,291	13,578	14,400	14,353	13,200	13,454	163,484
ST. MARTINSVILLE:													
Daily average	622	631	631	631	627	628	630	368	500	500	485	463	
Month	19,228	17,668	19,561	18,930	19,437	18,840	19,530	11,408	15,000	15,500	14,550	14,353	204,059
SULPHUR:													
Daily average	4,468	3,933	3,751	3,566	3,634	5,122	4,152	3,609	3,705	3,129	3,012	3,203	
Month	138,508	110,124	116,281	106,980	112,654	153,660	128,712	111,879	111,150	96,999	90,360	99,293	1,376,600
SWEET LAKE:													
Daily average	935	1,140	1,480	1,172	1,080	1,013	997	964	1,145	1,012	994	878	
Month	28,985	31,920	45,880	35,160	33,480	30,390	30,907	28,884	34,350	31,372	29,820	27,218	388,366
TEPETATE:													
Daily average	5,255	5,597	5,689	5,556	5,770	5,495	5,052	3,168	4,933	4,916	5,362	5,421	
Month	162,905	156,716	176,359	166,680	178,870	164,850	156,612	98,208	147,990	152,396	160,860	168,051	1,890,497
TEPETATE, NORTHEAST:													
Daily average	182	136	180	164	307	96	122	97	283	202	111	109	
Month	5,642	3,808	5,580	4,920	9,517	2,880	3,782	3,007	8,490	6,262	3,330	3,379	60,597
TIMBALIER BAY:													
Daily average	202	170	154	150	108	167	55	91	152	176	193	181	
Month	6,262	4,760	4,774	4,500	3,348	5,010	1,705	2,821	4,560	5,456	5,790	5,611	54,597
UNIVERSITY:													
Daily average	1,545	1,676	1,920	1,754	1,506	1,942	3,510	2,646	6,034	7,475	8,574	8,834	
Month	47,895	46,928	59,520	52,620	46,686	58,260	108,810	82,026	181,020	231,725	257,220	273,854	1,446,564
VALENTINE:													
Daily average	4,337	4,028	3,750	3,570	3,698	3,347	2,896	2,298	2,757	2,515	2,475	2,459	
Month	134,447	112,784	116,250	107,100	114,638	100,410	89,776	71,238	82,710	77,965	74,250	76,229	1,157,797
VENICE:													
Daily average	1,330	1,260	1,131	1,194	1,507	1,521	1,464	958	1,771	1,801	1,731	1,689	
Month	41,230	35,280	35,061	35,820	46,717	45,630	45,384	29,698	53,130	55,831	51,930	52,359	528,070
VILLA PLATTE:													
Daily average	5,827	6,455	7,468	7,983	8,350	9,399	9,314	5,615	11,271	12,349	13,489	41,531	
Month	108,637	180,740	231,508	239,490	258,850	281,970	288,734	174,065	338,130	382,819	404,670	450,461	3,412,074
VINTON:													
Daily average	1,188	1,170	1,223	1,193	1,247	1,272	1,180	1,063	1,054	1,073	1,058	1,041	
Month	36,828	32,760	37,913	35,790	38,657	38,160	36,580	32,953	31,620	33,263	31,740	32,271	418,535
WEST HACKBERRY:													
Daily average	3,720	3,624	3,351	3,337	3,555	3,214	3,357	2,634	3,728	3,826	3,722	3,740	
Month	115,320	101,472	103,881	100,110	110,205	96,420	104,067	81,654	111,840	118,606	111,660	115,940	1,271,175
WHITE CASTLE:													
Daily average	1,831	1,832	1,805	1,831	1,848	1,863	2,011	1,298	1,607	1,613	1,592	1,586	
Month	56,761	51,296	55,955	54,930	57,288	55,890	62,341	40,238	48,210	50,003	47,760	49,166	629,838
WOODLAWN:													
Daily average	1,122	1,065	1,029	1,028	1,220	1,347	1,337	959	1,280	1,549	1,618	1,896	
Month	34,782	29,820	31,899	30,840	37,820	40,410	41,447	29,729	38,400	48,019	48,540	58,776	470,482
WEST LAKE VERRET:													
Daily average	193	379	318	441	368	401	390	346	364	362	355	342	
Month	5,983	10,612	9,858	13,230	11,408	12,030	21,090	10,726	10,920	11,222	10,650	10,602	129,331
GRAND LAKE:													
Daily average	.....	.....	.....	.....	241	408	424	244	552	842	909	970	
Month	.....	.....	.....	.....	7,471	12,240	13,144	7,564	16,560	26,102	27,270	30,070	140,421
VERMILION BAY:													
Daily average	.....	.....	.....	.....	.....	.....	117	245	350	373	430	330	
Month	.....	.....	.....	.....	.....	.....	3,627	7,595	10,500	11,563	12,900	10,230	56,415
LA FOURCHE CROSSING:													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	197	307	367	382	
Month	.....	.....	.....	.....	.....	.....	.....	.....	5,910	9,517	11,010	11,842	38,279
PARADIS:													
Daily average	.....	.....	.....	.....	.....	.....	52	7	37	44	132	359	
Month	.....	.....	.....	.....	.....	.....	1,612	217	1,110	1,364	3,960	11,129	19,392
Daily average	189,481	190,708	190,813	192,830	192,963	195,420	202,538	126,811	178,838	196,433	202,110	206,316	188,799
Total 1939	5,873,911	5,339,812	5,915,203	5,784,900	5,981,853	5,862,600	6,278,678	3,931,158	5 395,140	6,089,423	6,063,300	6,395,796	68,911,774

Miscellaneous pools and their total production in the 12-month period were: Anse La Butte, 24,254 bbl.; Bayou Blue, 6,966 bbl.; Bayou Bouillion, 11,506 bbl.; Big Lake, 7,071 bbl.; Cankton, 9,074 bbl.; Chalkley, 220,207 bbl.; Elton, South, 11,176 bbl.; Fausse Point, 9,597 bbl.; Hester, 17,323 bbl.; Lake Hermitage, 20,195 bbl.; Lirette, 6,389 bbl.; South Jennings, 30,853 bbl.; Welsh, 8,969 bbl.; Henderson, 20,827 bbl.; La Pice, 5,437 bbl.; Kenilworth, 2,611 bbl.; North Elton, 3,705 bbl.; Lake Mongoulois, 3,161 bbl.; Bay Baptiste, 1,305 bbl.; Bataria, 14,761 bbl.; Happytown, 12,756 bbl.; LaPlace, 5,083 bbl.; total, 453,226 bbl.

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at 7,726 ft., and was completed at a total depth of 7,743 ft. for an initial production of 112 bbl. of fluid daily, 95 per cent of which was distillate and 5 per cent salt water. The gage was made through a 7/32-in. choke. Tubing and casing pressure was 1,500 lb. The well and block, comprising approximately 5,000 acres, were later sold to Humble Oil & Refining Co. for a reported cash consideration of $500,000 and a $1,000,000 oil payment.

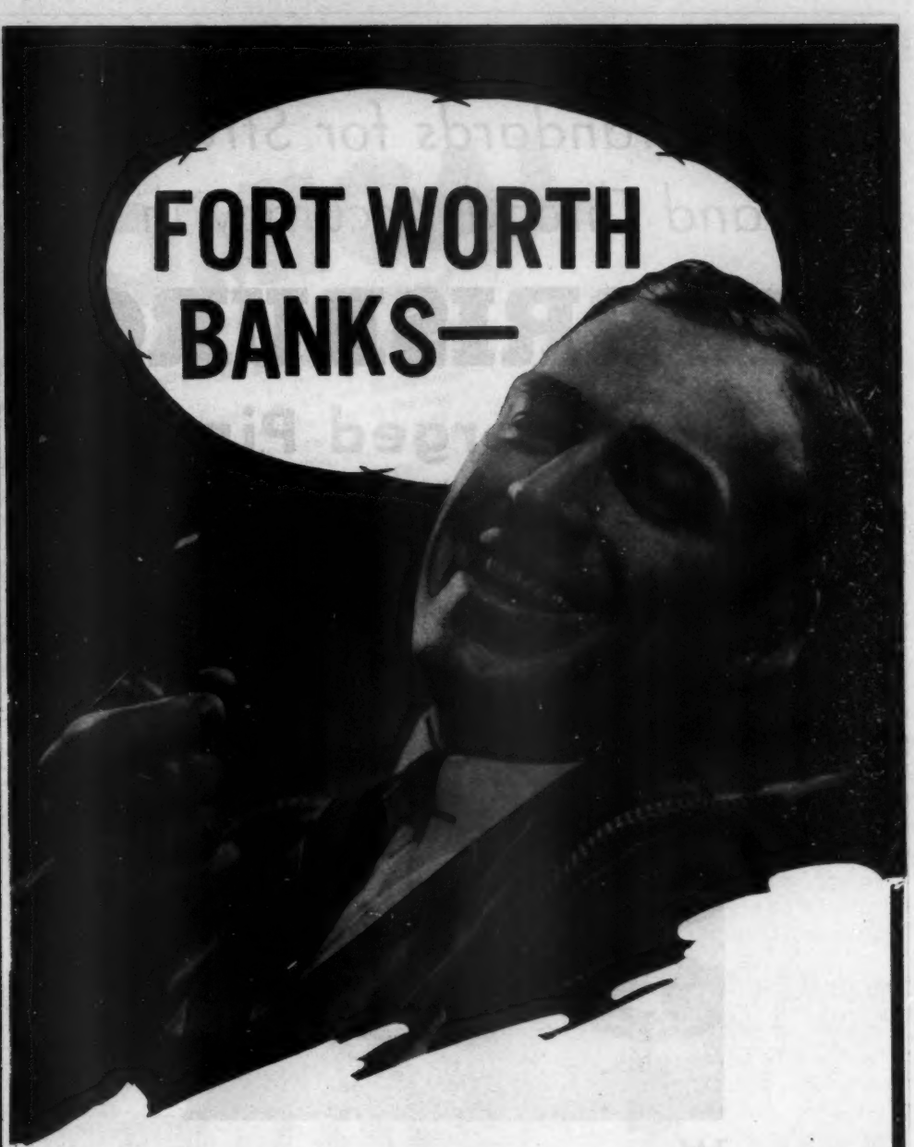
Flush production from a new sand was opened on the southeast flank of the old Esperson dome, Liberty County, by General Crude Oil Co.'s No. 1-B Esperson. Casing was perforated at 7,305-35 ft., and the well flowed 501 bbl. daily through a ¼-in. choke. Several additional producers have been completed in this area in different horizons ranging from 7,000 to 7,800 ft.

Development of the West Ranch field, Jackson County, has definitely established this structure as being one of the most prolific fields in the Gulf Coast district. Production has been extended in an east-west direction for 3 miles and approximately 2½ miles to the north. During the year production was developed from two new sands at 5,500 and 5,700 ft. and both horizons are thought to be blanket sands extending over the entire structure.

TEXAS GULF COAST

Summary of Wells Completed in 1939

Field—	Comp.	Prod.	Abd.	Gas
Ace	4	1,350	0	0
Amelia	4	752	0	0
Anahuac	42	21,058	1	2
Aldine	6	249	4	0
Anchor	1	267	0	0
Allen	1	0	1	0
Batson	7	825	4	0
Bammel	13	0	7	6
Boling	11	1,643	2	2
Bay City	5	1,202	0	0
Big Cauk	3	0	3	0
Barbers Hill	8	2,178	0	1
Blue Ridge	2	827	0	0
Brenham	1	10	0	0
Chocolate Bayou	1	32	0	0
Caplen	4	1,635	0	0
Cedar Point	12	1,649	7	0
Clear Lake	26	2,846	4	5
Cotton Lake	4	414	0	1
Cordelle	25	4,421	4	0
Clam Lake	18	2,243	2	2
Clinton	8	0	2	6
Conroe	3	592	2	0
Citrus Grove	3	0	0	2
Cedar Bayou	1	0	1	1
Danbury	11	607	6	1
Dickinson	40	13,539	3	2
Damon Mound	1	24	0	0
Eureka	19	6,281	2	2
Esperson	8	4,588	1	0
Fannett	13	1,437	1	1
Fairbanks	144	20,151	6	2
Friendswood	101	50,229	6	0
Francitas	5	424	1	0
Ganado	1	54	0	0
Garwood	1	70	1	0
Goose Creek	1	106	0	0
Hilje	1	24	0	0
Hardin	37	10,218	1	2
Hankamer	2	705	0	0
Hastings	68	32,933	5	0
Hitchcock	3	129	1	0
High Island	5	162	3	0
Humble	11	742	6	0
Hull	9	1,561	0	0
Katy	3	0	0	3
Liberty	2	145	0	0
League City	21	5,838	1	0
Lockridge	6	746	1	0
LaBelle	1	20	0	0
Lovells Lake	36	5,422	4	0
Louise	15	2,338	4	0
Lolte (Texana)	2	10	1	0
Maurits	3	109	2	0
Magnet	22	3,708	0	0
Manvel	6	1,362	0	1
McCaskey	1	175	0	0
Mykawa	2	0	2	0
Markham	10	938	3	0
Martha	7	770	3	0
Nome	1	275	0	0
North Markham	1	0	1	0
Northwest Conroe	1	0	1	0
North Cheek	1	0	1	0
Old Ocean	22	6,132	0	0
Orange	23	5,518	1	1
Pierce Junction	7	1,485	2	0
Pickett Ridge	10	782	0	1
Port Neches	7	620	0	1
Rosenberg	1	655	0	0
South Houston	4	407	2	0
Sour Lake	4	287	1	0
Seabreeze	8	748	2	2
Signo	30	11,938	1	0
Spanish Camp	1	0	0	1
Spindletop	8	642	3	0
Spurger	15	5,287	1	0
Satsuma	5	774	2	1
Silsbee	9	2,983	0	0
South China	5	729	1	0
Saratoga	2	29	0	0
South Cotton Lake	11	1,654	0	1
Thompson	62	24,648	9	1
Tomball	37	8,203	0	6
Turtle Bay	8	2,860	2	0
Van Vleck	6	1,551	0	0
West Beaumont	12	4,530	0	0
West Ranch	31	10,147	0	0
West Columbia	21	5,855	2	0
Withers	73	7,154	2	5
Miscellaneous	108	100	108	0
Total 1939	1,365	315,851	250	62



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HARRISBURG STEEL CORPORATION

HARRISBURG (H) PENNSYLVANIA

Completions by Months

Month—	Comp.	Prod.	Abd.	Gas
January	100	24,939	16	7
February	119	27,480	20	7
March	110	25,355	16	3
April	109	27,792	19	5
May	150	33,057	29	7
June	96	23,083	17	4
July	119	24,242	22	5
August	96	22,657	29	0
September	128	25,435	25	9
October	104	23,888	17	5
November	112	29,692	15	7
December	122	28,061	25	3
Total 1939	1,365	315,651	250	62
Total 1938	1,411	469,361	269	36
Difference	46	153,710	19	26

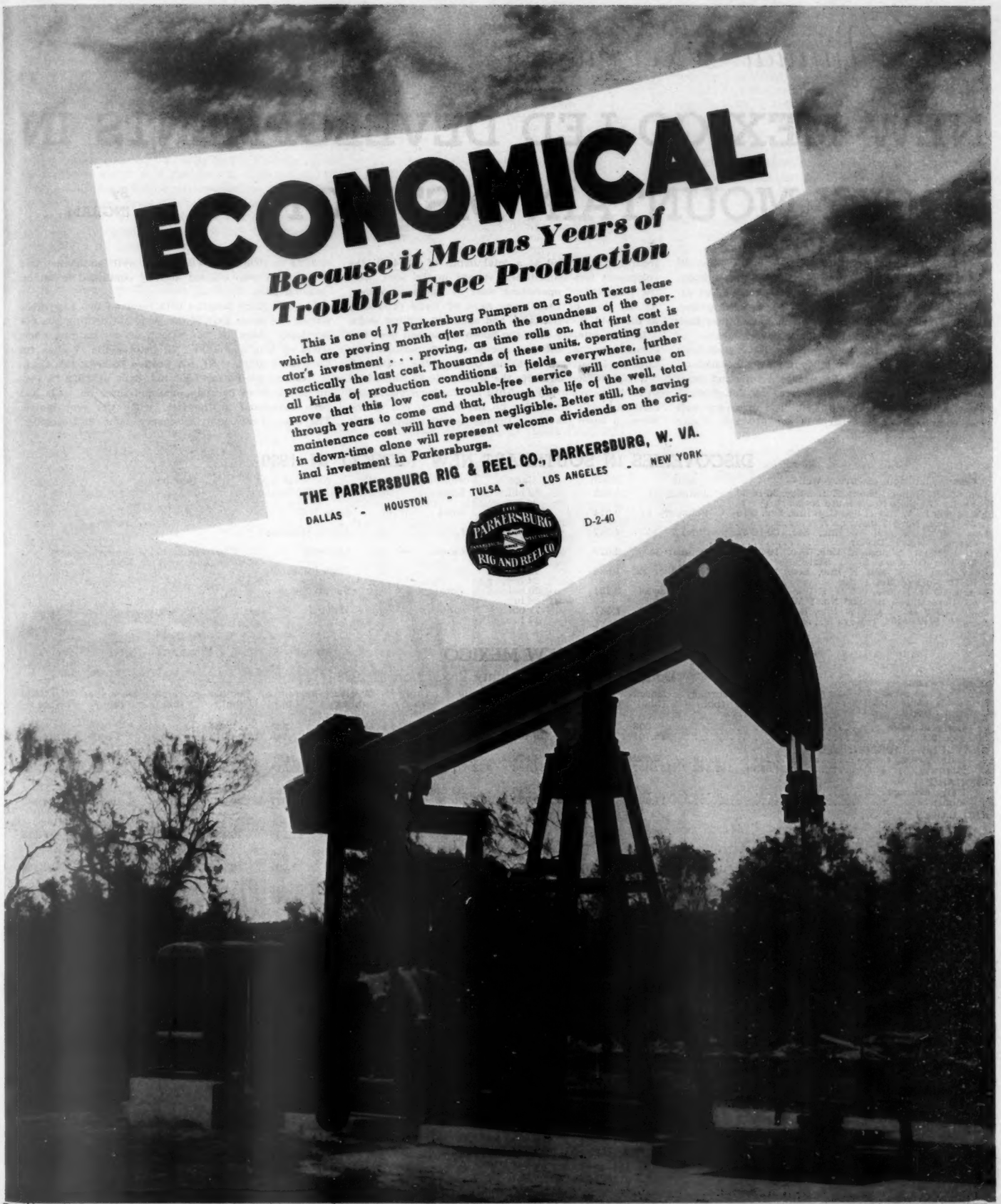
COASTAL LOUISIANA

Summary of Wells Completed in 1939

Field—	Comp.	Prod.	Abd.	Gas
Abbeville	5	374	2	0
Bancroft	36	9,150	2	0
Barataria	1	272	0	0
Bateman Lake	4	707	0	0
Bayou Cocotriz	3	105	1	0
Bayou Blue	2	0	2	0
Bay St. Elaine	5	1,284	0	0
Bayou Bouillon	1	0	0	1
Bayou Des Glaize	1	0	1	0
Bayou Des Allemonds	2	31	1	0
Black Bayou	1	0	1	0
Bel (North Elton)	1	0	0	1
Caillou Island	10	1,844	3	0
Creole	6	1,320	0	1
Charenton	89	14,183	11	1
Choctaw	4	1,014	1	0
Chalkley	12	3,809	3	0
Chacahoula	5	1,413	2	0
Cheneyville	18	4,617	4	0
Cameron Meadows	2	125	1	0
Convent	2	204	1	0
Darrow	13	2,548	8	0
Dog Lake	4	445	0	0
Delarge	1	0	1	0
East Baton Rouge	56	13,994	6	2
Eola	49	25,794	5	0
Edgerly	3	70	2	0
Fausse Point	2	66	1	0
Grand Bay	5	3,027	0	0
Golden Meadow	55	15,410	8	0
Gillis	4	701	1	0
Gueydan	1	0	1	0
Garden Island	7	1,739	0	0
Grand Lake	7	1,522	1	1
Hackberry	31	6,657	13	1
Happytown	1	1,013	0	0
Horseshoe Bayou	3	385	1	0
Iowa	2	640	0	0
Jeanerette	3	340	2	0
Jennings	35	9,436	7	0
Jefferson Island	4	779	2	0
Kenilworth	2	92	1	0
La Pice	2	47	1	0
La Place	1	133	0	0
La Fitte	8	9,014	1	0
La Fourche Crossing	1	312	0	0
Lake Mongoulois	2	159	0	0
Lirette	4	3	1	2
Lake Barre	1	0	1	0
Lake Hermitage	1	84	0	0
Lake Long	5	827	0	0
Lake Pelto	7	2,092	1	0
Lake Verrett	1	210	0	0
Leesville	5	76	3	0
Lockport	1	0	1	0
North Elton	1	42	0	0
North Crowley	8	3,324	2	0
New Iberia	31	5,489	5	0
North Tepetate	6	709	1	0
Perkins	2	0	2	0
Paradis	2	1,830	0	0
Port Barre	8	1,963	3	0
Potash	4	820	1	0
Plumb Bob	1	302	0	0
Quarantine Bay	15	7,307	1	0
Raceland	5	1,236	2	0
Roanoke	3	0	3	0
South Jennings	1	55	0	0
South Roanoke	5	667	1	0
Sorrento	1	0	1	0
Starks	3	0	3	0
Sweet Lake	2	612	1	0
Sulphur	13	333	4	0
South Houma	4	615	3	0
Timballer Bay	1	80	0	0
Valentine	11	1,661	5	1
Vermilion Bay	1	300	0	0
Villa Platte	52	13,797	1	0
Venice	6	1,189	1	0
Vinton	4	139	2	0
West Lake Verret	1	0	1	0
West Gueydan	5	1,141	2	0
Welsh	2	0	2	0
Woodlawn	9	2,083	1	0
White Castle	3	735	1	0
Miscellaneous	88	0	88	0
Total	835	184,496	242	11

Completions by Months

Month—	Comp.	Prod.	Abd.	Gas
January	52	14,336	16	1
February	67	9,141	29	2
March	36	7,482	14	1
April	43	7,058	12	0
May	54	9,706	21	0
June	67	15,153	15	3
July	64	13,752	23	1
August	75	17,698	23	0
September	80	17,153	16	1
October	105	29,393	26	0
November	90	18,213	23	0
December	102	25,411	24	2
Total 1939	835	184,496	242	11
Total 1938	525	127,732	186	10
Difference	310	56,764	56	1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Annual Review

NEW MEXICO LED DEVELOPMENTS IN ROCKY MOUNTAIN DISTRICT

By T. R. INGRAM

OPENING of what promises to be one of the major oil fields of Southeast New Mexico led development of an active year in both field work and wildcat exploration in New Mexico in 1939. Seven new producing areas were opened, all of which have either had, or offer, possibilities for immediate development.

Outstanding in the list of discoveries is the Loco Hills pool of northeastern Eddy County. Located on the south and east edges of the large Artesia and Grayburg-Jackson fields, it was discovered by Yates' No. 1 Yates, C NW SW Section 6-18-30. The discovery well was completed on February 14 for 610 bbl. a day from Permian sand at a total depth of 2,874 ft. Development was immediately started in the area, with the majority of operations west of the pool opener. At the start of 1940 there were 67 wells producing in the field, 8 derricks up and about 50 drilling wells.

Late in January 1939 the South Lovington pool was opened in the extreme north central part of Lea County. Discovered by Skelly Oil Co.'s No. 1 State, C NW NE Section 36-16-36, the well made 82 bbl. of oil in 24 hours from pay at 5,012 ft. The pool marks the farthest north production on the western rim of the Permian basin platform. During the 12 months of its drilling in 1939 there were 30 oil wells completed, and as the new year started activity continued at an increasing pace.

Lea and Eddy counties both received two new areas durirg the latter part of the year, but drilling has not developed them to the extent of determining their trend or true magnitude. In October the Westlea Oil Co.'s No. 1 State, C NE SW Section 16-20-32, Lea County, was completed for 1,500 bbl. daily at 2,629 ft. Production is from Permian lime and three oil wells had been completed in the field when the year closed. The other Lea County discovery came in December,

DISCOVERIES IN SOUTHEAST NEW MEXICO IN 1939

County, location, discovery well—	Date	Depth	Gage	Formation	No. wells	Name of pool	Remarks
Lea, 660 ft. N line, 1,980 ft. E line, Sec. 36-16-36, Skelly Oil Co.'s No. 1 State N	January 24	5,012	82 bbl. 24 hrs.	Lime	30	South Lovington	
Eddy, 660 ft. W line, 1,980 ft. S line, Sec. 6-18-30, Yates' No. 1 Yates	February 14	2,874	610 bbl. 24 hrs.	Sand	67	Loco Hills	
Lea, 330 ft. S and W line, Sec. 30-16-32, Carper's No. 1 Taylor	June 7	4,097	15 bbl. 24 hrs.	Lime	1	North Maljamar	
Lea, 1,980 ft. S and W line, Sec. 16-20-32, Westlea Oil Co.'s No. 1 State	October 25	2,629	1,500 bbl. 24 hrs.	Lime	3	Halfway	Four dry holes drilled to south, east and west of field.
Eddy, 330 ft. S and E line, Sec. 17-16-29, B. H. Nolan's No. 1 Iles	November 22	1,824	45 bbl. 24 hrs.	Sand	2	High Lonesome	
Lea, 1,980 ft. N line, 660 ft. E line, Sec. 5-18-32, Barefield & Brooks' No. 1 Walker	December 20	3,724	50 bbl. 24 hrs.	Sand	1	South Maljamar	
Eddy, 2,310 ft. N and W line, Sec. 15-20-30, N. H. Wills' No. 1 Keys	December 27	1,587	77 bbl. 11 hrs.	Sand	1	Wills	2 miles northeast of Barber field.

NEW MEXICO

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
ARTESIA:													
Daily average	.....	.....	508	499	497	502	514	271	525	454	485	470	
Month	.....	.....	15,761	14,973	15,400	15,067	15,934	8,416	15,743	14,072	14,550	14,569	144,485
GRAYBURG—JACKSON:													
Daily average	7,244	6,519	5,092	4,924	4,972	5,084	5,176	2,330	5450	6,222	4,723	5,356	
Month	224,559	182,542	157,537	147,732	154,136	152,527	160,430	72,216	163,514	192,892	141,679	166,028	1,508,691
LEONARD:													
Daily average	.....	.....	357	334	346	399	417	279	563	655	700	626	
Month	.....	.....	11,067	10,015	10,732	10,170	12,925	8,651	16,877	20,307	20,996	19,393	141,133
RED LAKES:													
Daily average	.....	.....	187	253	253	257	330	203	391	329	311	336	
Month	.....	.....	5,812	7,582	7,840	7,701	10,230	6,286	11,733	10,184	9,331	10,416	87,115
ROBINSON:													
Daily average	.....	.....	378	324	360	345	346	190	313	265	277	279	
Month	.....	.....	11,706	9,732	11,165	10,356	10,720	5,905	9,397	8,212	8,316	8,641	94,150
SHUGART:													
Daily average	.....	.....	214	211	212	216	256	137	355	283	321	313	
Month	.....	.....	6,627	6,322	6,569	6,480	7,936	4,238	10,647	8,785	9,622	9,688	76,914
LOCO HILLS:													
Daily average	.....	.....	124	167	163	168	590	279	1,093	2,122	2,718	4,875	
Month	.....	.....	3,843	4,997	5,053	5,047	18,282	8,659	32,805	65,770	81,534	151,125	377,115
MALJAMAR:													
Daily average	.....	.....	966	904	905	912	945	596	1,507	1,350	1,336	1,367	
Month	.....	.....	29,953	27,129	28,060	27,367	29,300	18,470	45,196	41.834	40.065	42,365	329,739
AZTEC:													
Daily average	5	5	.....	7	.....	.....	.....	5	2	.....	.....	.....	
Month	146	145	.....	210	.....	.....	.....	141	66	.....	.....	.....	708
COOPER:													
Daily average	3,830	4,122	4,441	4,224	4,495	4,518	4,026	2,325	3,327	3,926	3,681	3,600	
Month	118,743	115,424	133,236	126,720	139,342	135,547	124,800	72,062	99,801	121,692	110,431	111,600	1,409,398
EAVES:													
Daily average	806	782	910	820	889	939	897	554	769	860	774	812	
Month	24,988	21,905	27,293	24,598	27,556	28,172	27,807	17,159	23,056	26,665	23,231	25,175	297,065
EUNICE:													
Daily average	20,983	22,355	24,953	23,565	24,220	23,968	23,457	11,662	19,683	22,764	21,801	20,355	
Month	650,479	625,930	748,588	706,945	750,827	710,049	727,165	361,513	590,500	705,682	654,022	630,990	7,862,690
GETTY—BARBER:													
Daily average	202	68	73	14	95	100	100	.....	79	147	96	100	
Month	6,265	1,909	2,271	434	2,945	2,992	3,111	.....	2,380	4,563	2,880	3,112	31,513
HARDY:													
Daily average	2,592	2,658	2,875	2,832	3,590	3,730	3,094	1,517	3,156	3,260	3,264	3,537	
Month	80,361	74,427	86,255	84,973	111,302	111,894	95,909	47,021	94,670	101,057	97,913	109,647	1,095,429
HOBBS:													
Daily average	13,281	12,904	14,228	13,054	13,575	12,917	13,808	6,047	10,304	13,120	11,484	10,400	
Month	411,724	363,835	426,827	391,623	420,825	387,502	428,060	187,447	309,114	406,734	344,531	322,407	4,400,629
HOGBACK:													
Daily average	197	196	200	196	200	195	184	147	196	186	186	199	
Month	6,094	5,475	6,194	5,889	6,189	5,856	5,700	4,559	5,880	5,155	5,580	6,175	68,746
JAL:													
Daily average	683	780	652	607	736	726	499	317	524	715	567	633	
Month	21,180	21,837	19,567	18,213	22,822	21,776	15,481	9,839	15,714	22,160	17,014	19,632	225,235
LANGLIE:													
Daily average	4,208	4,579	5,040	5,112	5,662	5,754	5,667	2,253	4,324	5,750	5,451	4,960	
Month	130,453	128,212	151,190	153,348	175,530	172,619	175,725	69,851	129,726	178,252	163,531	153,753	1,782,190
LYNCH:													
Daily average	488	501	504	536	537	539	512	244	551	579	486	464	
Month	15,129	14,018	16,932	16,084	16,647	16,170	15,863	7,549	16,533	17,944	14,576	14,380	181,825
LYNN:													
Daily average	740	736	778	738	816	840	700	303	915	956	829	904	
Month	22,945	20,622	23,350	22,125	25,296	25,200	21,699	9,402	27,452	29,627	24,884	28,021	280,623

(Continued on Next Page)

Barefield & Brook's No. 1 Walker, C SE NE Section 5-18-32. It is called the South Maljamar pool due to its location just south of the extreme eastern end of the Maljamar field in western Lea County.

The High Lonesome area was opened in northern Eddy County and north of the Grayburg-Jackson field in November by B. H. Nolan's No. 1 Iles, C SE SE SE Section 17-16-29. The well was completed for 45 bbl. daily from pay at 1,824 ft. Late in December an offset was completed for 55 bbl. daily and a 2½-mile south outpost was gaged as a gas well at 4,300,000 cu. ft. daily. Continuous drilling is expected for the relatively shallow area during the coming months.

On December 27 the Wills pool was opened in east central Eddy County by N. H. Wills' No. 1 Keys, located 2,310 ft. from the north and west lines of Section 15-20-30, about 10 miles east of the old Getty pool. The well gaged 77 bbl. of oil in 11 hours or at the rate of about 160 bbl. daily from pay at 1,587 ft. in sand.

NEW MEXICO

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas
Lea	413	202,258	20	12
Eddy	163	48,583	31	3
Chaves	4	0	4	0
Rio Arriba	1	0	1	0
McKinley	2	356	5	2
San Juan	20	853	5	2
Torrance	1	0	0	1
De Baca	2	0	2	0
Total, 1939	606	252,050	63	18

Completions by Months

Month—	Comp.	Prod	Dry	Gas
January	48	21,492	7	1
February	42	26,393	4	0
March	36	24,405	5	2
April	55	16,669	5	3
May	48	23,297	13	1
June	44	10,551	3	1
July	49	17,872	7	1
August	40	16,667	2	1
September	43	17,734	4	2
October	61	28,901	3	1
November	54	24,598	2	1
December	86	24,371	8	4
Total, 1939	606	202,250	63	18
Total, 1938	579	182,293	67	18
Difference	27	19,957	4	0

Colorado

While Colorado showed a slight increase in 1939 in the number of wells completed, drilling operations in the state continued to be far below normal. One discovery was made in a lower horizon in the Fort Collins field in an old well drilled deeper, and the Wilson Creek field, which was a discovery in 1938, was extended in one additional well drilled to completion during the year. Five major wildcats completed during the year failed to score any discoveries.

The Fort Collins discovery was in the Continental Oil Co.'s No. 1 Meyer, SW SE SW Section 19-8n-68w, in Larimer County, 3 miles north of the city of the same name and 7 miles south of the Wellington field. This field was discovered in 1924 and has produced better than 2,100,000 bbl. to date from the Muddy sand, the lowest horizon tested. In August 1939, the Continental Oil Co. began deepening its No. 1 Meyer, which is located on the top of the structure, to test all horizons down to the Sundance. The well originally was completed in the Muddy at 4,437-90 ft. in 1925 for 200 bbl. per day. When deepening began it showed saturation at 4,658-83 ft. in the Dakota sand, but drilling continued and the top of the Sundance was found at 5,037 ft. Water was encountered at 5,063-5,202 ft., and drilling stopped at 5,206 ft. Hole then was plugged back to 4,686 ft. and shot with 20 quarts at 4,464-4,686 ft. It swabbed 187 bbl. in 7 hours through the casing without lowering the fluid level at 3,100 ft. The well was then shut in for 3 months and in December was put on the pump, averaging 300 bbl. per day of 31.6-gravity oil and 50 bbl. of water. While it proves up

NEW MEXICO (Continued)

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
MATTIX:													
Daily average	3,113	3,382	3,722	3,866	4,374	4,693	4,541	2,222	4,117	5,261	5,182	5,312	
Month	96,499	94,689	111,650	115,981	135,594	140,086	140,785	68,893	123,506	163,091	155,464	164,669	1,510,907
MONUMENT:													
Daily average	23,421	23,134	24,972	24,093	25,465	25,177	24,800	12,565	21,430	21,422	22,792	21,512	
Month	726,054	647,747	749,146	722,802	789,412	755,310	768,797	383,513	642,914	664,091	683,754	666,875	8,206,415
NORTH LYNCH:													
Daily average	37	40	40	40	39	40	33	6	36	30	30	34	
Month	1,157	1,127	1,103	1,199	1,210	1,192	1,021	174	1,092	934	902	1,054	12,255
PENROSE:													
Daily average	4,912	4,798	5,024	4,622	5,808	5,763	4,556	2,071	4,488	4,727	4,479	4,693	
Month	152,286	134,347	150,723	138,645	180,054	172,887	141,248	64,188	134,629	146,540	134,380	145,480	1,695,407
RATTLESNAKE:													
Daily average	639	352	581	620	536	551	559	564	590	546	584	569	
Month	19,819	9,858	18,012	18,598	16,621	16,530	17,330	17,483	17,706	16,933	17,520	17,632	204,042
RHODES:													
Daily average	119	95	132	88	136	129	90	39	104	77	94	60	
Month	3,675	2,662	3,953	2,630	4,218	3,875	2,814	1,214	3,122	2,394	2,811	1,857	35,225
SKAGGS:													
Daily average	177	87	86	67	81	88	79	17	103	64	88	91	
Month	5,501	2,450	2,598	2,016	2,503	2,636	2,464	530	3,087	1,924	2,646	2,832	31,247
SKELLY:													
Daily average	1,442	1,397	1,577	1,463	1,898	1,954	1,389	725	1,567	1,718	1,571	1,782	
Month	44,715	39,103	47,316	43,901	58,832	58,612	43,062	22,483	47,024	53,252	47,135	55,261	560,696
SOUTH EUNICE:													
Daily average	2,999	3,117	3,144	3,313	3,962	4,032	3,975	2,122	4,577	4,180	4,241	4,099	
Month	92,615	87,266	94,326	99,398	122,830	120,956	123,217	65,792	137,320	129,591	127,230	127,073	1,327,614
SOUTH LOVINGTON:													
Daily average	25	148	156	223	227	530	550	307	787	917	1,003	1,310	
Month	789	4,143	4,685	6,675	7,037	15,904	17,047	9,516	23,600	28,423	33,098	40,614	191,531
TABLE MESA:													
Daily average	95	69	78	89	76	60	66	19	99	116	100	89	
Month	2,949	1,923	2,404	2,664	2,348	1,794	2,050	584	2,975	3,604	3,000	2,759	29,054
VACUUM:													
Daily average	5,590	4,411	5,747	6,013	9,814	10,441	5,981	3,405	7,311	13,451	16,008	11,413	
Month	173,285	123,501	172,422	180,376	304,242	313,226	185,411	105,553	219,341	416,979	480,237	353,808	3,028,381
WEST EUNICE:													
Daily average	103	86	96	100	100	110	93	.....	.....	208	173	.....	
Month	3,183	2,420	2,882	3,010	3,106	3,291	2,897	.....	.....	6,456	5,182	.....	32,427
Daily average	97,879	97,411	104,688	103,918	115,040	115,293	108,233	53,720	99,237	116,641	115,935	110,566	103,201
Total 1939	3,034,244	2,727,517	3,245,319	3,117,539	3,566,243	3,458,791	3,355,220	1,665,307	2,977,120	3,615,859	3,478,045	3,427,031	37,668,235
Total 1938	3,226,339	2,887,254	3,145,000	2,954,202	3,009,427	2,738,019	2,901,880	2,956,461	2,867,801	3,031,886	3,250,438	3,039,820	36,008,527
Total 1937	2,744,129	2,735,529	3,116,093	3,156,154	3,412,581	3,430,106	3,436,277	3,399,083	3,389,442	3,241,495	3,109,259	3,267,924	38,438,072
Total 1936	1,865,049	1,838,608	2,097,447	2,055,198	1,303,441	2,183,776	2,235,797	2,329,632	2,251,558	1,510,447	2,469,218	2,506,288	26,647,459

COLORADO

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
FLORENCE:													
Daily average	153	139	212	163	150	199	162	169	168	153	159	153	
Month	4,733	3,887	6,561	4,889	4,649	5,972	5,028	5,224	5,039	4,744	4,769	4,750	60,245
FORT COLLINS:													
Daily average	101	116	105	92	108	106	103	81	57	169	130	129	
Month	3,129	3,251	3,252	2,768	3,360	3,184	3,206	2,419	1,703	5,226	3,898	4,007	39,403
ILES DOME:													
Daily average	2,241	2,066	2,080	2,029	2,035	2,059	1,965	1,888	1,878	2,196	1,830	1,855	
Month	69,480	57,838	64,473	60,874	63,079	61,777	60,923	58,533	56,352	68,064	54,893	57,489	733,775
MOFFAT:													
Daily average	296	255	294	280	305	282	254	241	305	297	293	282	
Month	9,178	7,137	9,124	8,401	9,461	8,458	7,885	7,461	9,154	9,204	8,796	8,742	103,001
ORCHARD:													
Daily average	34	.....	35	25	20	12	.....	.....	38	18	11	13	
Month	1,045	.....	1,035	744	620	360	.....	.....	1,072	564	340	400	6,241
PRICE:													
Daily average	467	326	285	449	693	695	537	441	570	508	513	508	
Month	14,446	9,138	8,820	13,476	21,460	20,861	16,645	13,678	17,104	15,723	15,399	15,756	182,506
RANGELY:													
Daily average	.....	.....	67	35	26	30	40	58	104	89	95	92	
Month	.....	.....	2,069	1,039	804	892	1,226	1,813	3,109	2,751	2,844	2,849	19,396
TOW CREEK:													
Daily average	122	128	158	131	157	141	132	163	150	146	144	142	
Month	3,797	3,592	4,890	3,928	4,872	4,236	4,089	5,055	4,509	4,515	4,313	4,400	52,196
WELLINGTON:													
Daily average	222	179	196	198	204	214	188	190	212	216	214	210	
Month	6,892	5,010	6,095	5,947	6,339	6,419	5,833	5,923	6,363	6,699	6,435	6,518	74,473
WILSON'S CREEK:													
Daily average	345	306	240	306	319	319	333	320	391	455	468	468	
Month	10,685	8,568	7,445	9,193	9,870	9,570	10,320	9,940	11,724	14,115	14,037	14,496	129,963
Daily average	3,980	3,515	3,672	3,709	4,017	4,058	3,715	3,550	3,871	4,245	3,857	3,852	3,939
Total 1939	123,385	98,421	113,825	111,259	124,514	121,729	115,155	110,046	116,129	131,605	115,724	119,407	1,401,199
Total 1938	129,758	105,065	100,193	112,971	114,757	107,281	105,437	115,001	106,960	102,511	103,297	121,143	1,324,374
Total 1937	103,705	115,079	138,643	131,611	135,891	136,658	142,256	145,918	127,772	134,896	131,207	134,755	1,578,391
Total 1936	102,827	111,012	131,502	154,860	149,978	143,760	139,748	150,102	145,410	151,249	117,240	115,072	1,612,760
Total 1935	109,690	111,743	148,149	146,635	150,325	133,302	129,285	130,789	130,040	129,747	118,031	117,806	1,555,542

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CONTINENTAL

a limited area, probably not exceeding 160 acres, it is the first commercial well in the Dakota sand in Colorado east of the mountain range, and ultimately the company expects to deepen other wells. The field was nearing the exhaustion point when the deeper sand was found productive.

Extend Wilson Creek Field

The Wilson Creek field in Rio Blanco County was extended approximately a mile to the northwest in the Texas Co.'s No. 2 Unit, NW SE SW Section 27-3n-94w, a joint operation with the California Co. The discovery well in the SW SE NW Section 35-3n-94w, completed in 1938, was drilled to 6,918 ft. and showed some saturation in 74 ft. of Sundance sand along with water. It was plugged back to the top of the sand and the 7-in. casing was perforated opposite the Morrison sand at 6,665-85 ft. On final test it made 492 bbl. natural flow in 24 hours through the 2½-in. tubing and then was shut in. The oil had a paraffin base and tested 46 gravity. It was not given any open test through the casing but it is believed it would have made between 1,000 and 1,500 bbl. per day. No. 2 Unit, which was drilled in 1939, had the Morrison sand as the objective. This sand was found at 6,535-6,697 ft. and drilling stopped at 6,702 ft. The 7-in. was set at 6,696 ft. and perforated. Testing started in September through a small bean which was increased gradually, and late in December experimental work still was in progress. No official figures were released other than that it performed approximately the same as the discovery well.

COLORADO

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas
Adams	1	0	1	0
Boulder	2	0	2	0
Elbert	1	0	1	0
Fremont	3	30	2	0
Garfield	1	0	1	0
Huerfano	6	5	5	0
Larimer	1	300	0	0
Mesa	1	0	1	0
Moffat	5	485	2	1
Prowers	1	0	1	0
Rio Blanco	2	75	0	0
Routt	1	0	1	0
Total 1939	25	895	17	1

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	4	360	3	0
February	2	0	2	0
March	2	0	1	1
April	0	0	0	0
May	3	30	2	0
June	0	0	0	0
July	3	75	1	0
August	2	0	2	0
September	2	130	0	0
October	3	0	3	0
November	1	0	1	0
December	3	300	2	0
Total 1939	25	895	17	1
Total 1938	18	948	10	1
Difference	7	53	7	0

Wyoming

Wyoming had one gas discovery in a new area, two oil discoveries in deeper pays in producing fields, and a considerable extension of the productive area in proven horizons in one of these. The gas discovery was on the Horne Valley structure in Carbon County. The oil discoveries in deeper horizons in old fields were in the Lance Creek field of Niobrara County, and the Wertz field in Carbon County. The extension of productive areas was in the Lance Creek field.

The most important developments were in the Lance Creek field in which 48 wells were completed with only one dry hole. Of these 14 were Sundance-sand wells with a gross initial production of 5,046 bbl.; 27 were in the Leo horizon, with a gross initial production of 38,613 bbl.; and 6 were in the Joss sand with a gross initial production of 6,866 bbl., a total of 50,525 bbl. Some of the Leo-sand wells were drilled into the Joss sand for exploratory purposes and then plugged back and completed in that horizon.

The discovery in a deeper horizon took place in the Minnelusa Oil Corp.'s No. 2 Joss, SE NE SW Section 6-35n-65w, an outside well on the west side. This well, which marked the limits of production in the Sundance horizon, was completed in that formation at 3,989 ft. in February 1937, for 100 bbl. per day. In February 1939, deepening to the Leo sand was begun. The top of the Leo zone was at 5,154 ft., and at 5,233 ft. the well was shut down, not looking any too promising. Then it was decided to core deeper and it picked up a sand at 5,340-52 ft. which made 30 bbl. an hour. The new horizon was given the name of the Joss sand, although some companies carry it as the second bench of the Leo.

At first it was believed that production in the Joss sand would be confined to the west side of the field, but as drilling progressed during the year it became

WYOMING

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Tl. 1939 (bbl.)
SALT CREEK:													
Daily average	14,998	14,370	17,386	14,128	15,656	14,990	15,791	14,737	10,801	14,286	14,610	14,032	
Month	464,940	402,348	538,981	423,871	485,351	449,692	489,562	456,824	324,322	442,879	438,317	434,997	5,352,584
BADGER BASIN:													
Daily average	175	146	135	145	130	147	140	135	140	135	140	135	
Month	5,425	4,080	4,185	4,350	4,030	4,400	4,340	4,185	4,200	4,183	4,197	4,180	51,755
BIG MUDDY:													
Daily average	1,264	1,174	1,212	1,190	1,192	1,192	1,213	1,205	1,189	1,187	1,180	1,061	
Month	39,194	32,872	37,550	35,707	36,923	35,770	37,611	37,342	35,685	36,817	35,389	32,886	433,746
BYRON:													
Daily average	.....	.....	2,301	12	2,112	2,765	2,096	2,148	2,453	2,079	2,472	2,323	
Month	.....	.....	71,356	374	65,474	82,958	64,983	66,579	73,579	64,444	74,168	72,015	635,930
DALLAS DERBY:													
Daily average	349	506	526	448	247	280	415	453	570	583	574	565	
Month	10,831	14,177	16,294	13,439	7,661	8,392	12,858	14,049	17,100	18,079	17,229	17,498	167,607
FRANNIE:													
Daily average	385	1,059	920	1,345	1,220	1,185	1,253	711	764	3,030	3,247	2,903	
Month	11,936	29,666	28,522	40,361	37,820	35,566	38,854	22,041	22,910	93,926	97,420	90,000	549,022
GARLAND:													
Daily average	1,889	1,759	1,442	2,488	2,405	2,611	2,372	2,790	2,582	2,541	2,609	2,532	
Month	58,562	49,255	44,708	74,626	76,421	78,337	73,522	86,498	77,461	78,774	78,278	78,506	854,948
GRASS CREEK:													
Daily average	1,754	1,844	1,880	2,915	2,796	2,940	3,178	1,569	1,554	1,819	1,685	1,613	
Month	54,383	51,618	58,278	87,458	86,683	88,212	98,518	48,641	46,321	56,386	50,561	49,991	777,050
HAMILTON DOME:													
Daily average	.....	.....	.....	1,428	1,498	2,075	1,522	260	.....	.....	.....	.....	
Month	.....	.....	.....	42,845	46,444	62,246	47,177	8,063	.....	.....	.....	.....	206,775
HUDSON:													
Daily average	230	206	230	238	241	246	245	246	246	238	241	226	
Month	7,117	5,779	7,128	7,135	7,464	7,387	7,585	7,633	7,387	7,380	7,239	7,009	86,243
LA BARGE:													
Daily average	850	840	894	894	875	905	825	890	875	1,145	992	968	
Month	26,354	23,533	27,709	26,832	27,127	27,146	25,574	27,579	26,249	35,489	29,766	29,990	333,348
LANCE CREEK:													
Daily average	12,207	13,990	14,259	16,186	16,040	16,510	18,355	20,778	21,222	21,645	24,706	24,032	
Month	378,411	391,747	442,032	485,576	497,253	495,300	569,106	644,136	636,665	671,003	741,201	744,989	6,697,419
LOST SOLDIER:													
Daily average	1,935	1,803	1,896	2,041	1,843	1,771	1,814	2,022	1,486	1,829	1,836	1,790	
Month	60,000	50,477	58,776	61,225	57,124	53,136	56,242	62,688	44,591	56,697	55,085	55,500	671,541
MAHONEY DOME:													
Daily average	275	151	266	277	367	339	343	326	302	324	254	274	
Month	8,533	4,216	8,238	8,318	11,366	10,174	10,631	10,095	9,065	10,053	8,631	8,494	107,814
MEDICINE BOW:													
Daily average	2,222	2,198	2,055	2,026	1,756	1,761	1,712	1,620	1,549	1,386	936	1,129	
Month	68,873	61,531	63,737	60,793	54,450	52,836	53,060	50,195	46,463	40,952	28,070	35,000	615,960
OREGON BASIN:													
Daily average	1,888	1,248	2,273	2,638	2,330	2,327	2,965	4,981	3,131	3,308	3,009	3,065	
Month	58,531	34,930	70,490	79,133	72,245	69,821	91,915	154,420	93,931	102,547	90,286	95,011	1,013,260
OSAGE:													
Daily average	750	700	800	750	800	805	800	750	800	600	553	505	
Month	23,250	19,600	24,800	22,500	24,800	24,141	24,800	23,250	24,000	18,610	16,590	15,656	261,997
QUEALY DOME:													
Daily average	757	705	630	631	652	641	584	617	532	496	526	500	
Month	23,464	19,739	19,530	18,916	20,214	19,230	18,100	19,139	15,961	15,366	15,784	15,509	220,952
ROCK CREEK:													
Daily average	2,357	2,916	2,932	2,963	2,943	2,947	2,532	2,889	2,666	2,498	2,523	2,468	
Month	73,054	81,636	90,911	88,903	91,219	88,420	78,506	89,539	79,967	77,425	75,697	76,496	991,773
POISON SPIDER:													
Daily average	263	260	200	223	79	78	91	.....	.....	.....	.....	.....	
Month	8,150	7,279	6,185	6,682	2,442	2,329	2,834	.....	.....	.....	.....	.....	35,901
WERTZ:													
Daily average	1,290	1,583	1,520	1,627	1,574	1,572	2,201	2,825	3,786	3,613	2,149	2,419	
Month	39,994	44,329	47,115	48,799	48,792	47,157	68,239	87,578	113,330	112,009	64,466	75,000	796,808
ELK BASIN:													
Daily average	555	560	588	572	585	546	308	578	588	629	643	599	
Month	17,219	15,694	18,213	17,167	18,134	16,376	9,544	17,942	17,649	19,492	19,290	18,572	205,292
MISCELLANEOUS POOLS:													
Daily average	717	520	488	586	496	498	567	600	657	581	650	612	
Month	22,225	14,571	15,142	17,565	15,375	14,949	17,592	18,595	19,716	18,010	19,504	18,987	212,231
Daily average	47,111	48,538	54,835	55,753	57,897	59,133	61,328	62,869	57,885	63,888	65,589	63,751	58,279
Total 1939	1,460,446	1,359,077	1,699,880	1,672,575	1,794,812	1,773,975	1,901,153	1,967,011	1,736,552	1,980,521	1,967,668	1,976,286	21,279,956
Total 1938	1,507,003	1,303,197	1,470,861	1,541,085	1,572,215	1,629,946	1,673,507	1,732,190	1,751,799	1,572,831	1,535,109	1,666,544	18,956,277
Total 1937	1,437,401	1,441,921	1,669,575	1,618,595	1,632,815	1,523,962	1,670,691	1,787,753	1,781,514	1,798,817	1,628,841	1,645,336	19,637,218
Total 1936	1,062,556	972,486	1,153,448	1,081,830	1,124,370	1,059,420	1,204,443	1,243,875	1,275,150	1,332,256	1,427,400	1,331,605	14,268,939
Total 1935	1,028,439	936,981	1,019,743	1,118,852	1,084,698	1,160,513	1,097,308	1,222,012	1,182,983	1,136,513	1,083,110	1,166,613	13,237,765

Miscellaneous fields and their production in 1939 are (in bbl.): Cole Creek 23,123, Cody dome 17,359, Dewey dome 3,888, Dutton Creek 15,006, Hidden dome 25,908, Mule Creek 63,190, Midway 6,050, Rex Lake 934, South Casper Creek none reported, Spindletop 2,440, Teapot (outside) 6,791, Warm Springs 41,659, Pilot Butte 500, Iron Creek 5,323; total, 212,231.

apparent that it extended over a considerable area. In October the Argo Oil Co.'s No. 7 Ford, NW SE NW Section 33-36n-65w, an outside well on the north and 2½ miles northeast of the No. 2 Joss, was completed at 5,560 ft. for 2,439 bbl. first 24 hours. It had the Leo sand at 5,365-5,407 ft. Then it picked up another sand at 5,517 ft. and at 5,534 ft. it tested 30 bbl. in 30 minutes through the drill stem. The 7-in. was cemented on top of the Leo at 5,276 ft. and the well produced from both horizons. Several wells at strategic locations which were headed for the Leo pay, were carried down to the Joss and tested through the drill pipe for exploratory purposes and then plugged back and completed in the Leo sand. In December the Continental Oil Co.'s No. 4 Apex-1, NW NE NE Section 34-36n-65w, an outside well on the northeast in the Leo sand, and 4 miles northeast of the No. 2 Joss, the discovery well, was completed at 5,539 ft. with an initial production of 620 bbl. through the tubing. It flowed 125 bbl. in 24 hours from the Leo at 5,283-5,330 ft. before drilling into the Joss. At the end of the year the Continental Oil Co.'s No. 5-A Dielman, SE NW NW Section 8-35n-65w, on the southeastern side of the field, tested the Joss at 5,585 ft., total depth, finding it saturated. It was plugged back to 5,415 ft. and completed in the Leo sand for 1,453 bbl. first 24 hours after acidizing with 1,000 gal. These operations indicate that at least 2,240 acres will be productive in the new horizon, and that not less than 11,000,000 bbl. of new reserves were opened up.

The principal extension to the Sundance-sand area took place on the east side of the field more than a mile to the east of the nearest producers in that horizon in a district which it was believed production had been shut off by a fault. Six wells were completed outside the limits of the proven area in the Sundance. The first of these was in March in the Ohio Oil Co.'s No. 1 Leo-OPC-7, NW NW SE Section 35-36-65. This well originally was completed in 1920 as a 25-bbl. well in the Dakota. In 1937 it was deepened to 5,673 ft. to test the possibilities of the Leo sand. It was only a small producer in that horizon and finally became exhausted. In March of this year it was plugged back to the Sundance at 4,308-4,404 ft. and produced 190 bbl. per day through perforated casing. Three offsets proved to be about the same type of wells, but the Continental company went nearly half a mile to the north and obtained a 1,005-bbl. well in its No. 5 Apex-4, in the NE NE NW Section 35, the best of the group. Three of the six wells are outposts on the east and it is not yet known just how far the productive area will extend. About 40 acres was added to the Sundance-sand area on the northwest in Section 31 in the Continental's No. 9 Rohlff.

Approximately 600 acres were added to the productive area in the Leo sand, the extensions being around the edges of the drilled territory. The most important of these were on the northwest side. The Continental Oil Co.'s No. 2 Emil Rohlff, NW SE NW Section 32, carrying the proven area for the Leo ½ mile to the north, and for the Sundance area ¼ mile. It averaged 65 bbl. an hour for 8 hours at 5,400 ft. Same company's No. 10 Otto Rohlff, SW SW SE Section 31, which was considered in doubtful territory, was completed in the Leo sand at 5,449 ft., total depth, for 1,894 bbl. first 24 hours.

MONTANA

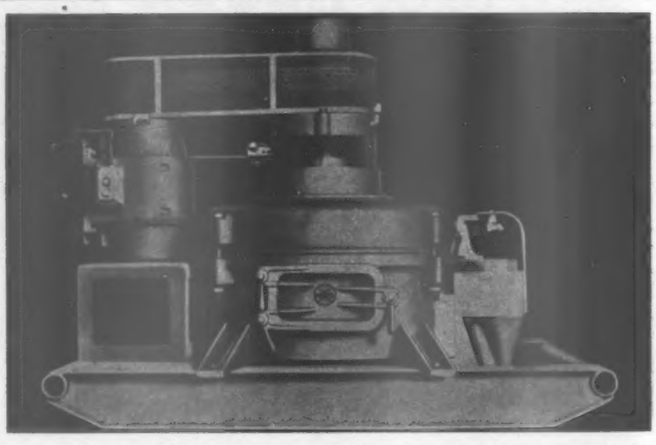
Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
BORDER:													
Daily average	188	115	60	114	94	108	93	76	208	196	207	202	
Month	5,817	3,223	1,859	3,429	2,923	3,249	2,871	2,353	6,245	6,092	6,220	6,250	50,531
CAT CREEK:													
Daily average	577	541	561	553	563	561	565	567	525	485	383	403	
Month	17,882	15,147	17,380	16,605	17,468	16,834	17,502	17,582	15,744	15,031	11,485	12,500	191,160
CUT BANK:													
Daily average	8,231	8,277	8,583	8,791	9,507	8,805	9,896	10,080	9,794	10,857	10,858	10,758	
Month	255,162	231,758	266,085	263,744	294,719	264,155	306,769	312,465	293,831	336,570	325,750	333,504	3,484.515
DRY CREEK:													
Daily average	908	871	480	1,143	1,015	1,142	972	742	861	1,039	385	726	
Month	28,148	24,389	15,167	34,290	31,477	34,251	30,121	22,987	25,844	32,207	11,558	22,496	312,935
KEVIN-SUNBURST:													
Daily average	3,510	3,704	3,711	4,392	4,168	4,387	4,183	4,554	4,554	4,405	4,507	4,390	
Month	108,833	103,692	115,042	131,733	129,218	131,600	129,697	141,194	136,575	136,566	135,200	136,100	1,535,450
PONDERA:													
Daily average	475	447	583	827	918	921	843	725	972	850	808	806	
Month	14,726	12,529	18,083	24,805	28,455	27,630	26,136	22,483	29,138	26,336	24,227	24,977	279.525
Daily average	13,889	13,955	13,988	15,820	16,266	15,924	16,552	16,744	16,913	17,832	17,148	17,285	16,039
Total 1939	430,568	390,738	433,619	474,606	504,260	477,719	513,096	519,064	507,377	552,802	514,440	535,827	5,854,116
Total 1938	368,053	359,579	399,519	441,399	417,352	438,698	402,779	407,932	392,657	403,516	407,570	385,863	4,824,917
Total 1937	413,728	413,356	484,552	548,209	560,824	540,559	577,066	543,372	459,623	414,541	392,572	450,962	5,799,364
Total 1936	369,148	295,191	482,391	488,100	532,053	516,660	495,132	461,094	566,610	516,491	502,260	573,531	5,798,661
Total 1935	348,101	302,697	321,665	323,965	325,205	312,071	403,140	415,226	398,069	410,648	409,182	397,259	4,367,228

MAINTAIN MUD WEIGHT

WITHOUT TREMENDOUS LOSSES OF MUD-WEIGHTING MATERIALS

In maintaining desired mud-weight, it is no longer necessary to dispose of surplus weighted-mud which has picked up colloids, gas and water from the formation. With the new Merco Type A-24 Concentrator, the weighting material can be concentrated in the mud stream. A small flow (10 to 25 gallons per minute) of previously desanded, weighted-mud is fed into the Concentrator. Excess colloids, gas and water are desanded and the weighting material is concentrated up to a density of 120 lbs./cu. ft. The concentrates are then remerged with the circulating mud stream, continuously restoring the original mud-weight.



The Merco Type A-24 Concentrator differs from the Merco Type A-24 Desander in application and construction. The Merco Concentrator is specifically designed for concentrating mud-weighting materials while the Desander is designed for extracting sand and cuttings from the mud. The Concentrator is constructed for much higher speed, and has other refinements not embodied in the Desander.

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The only dry hole drilled in the field was the Continental Oil Co.'s No. 15 Tom Bell, C SW SW Section 34-36n-65w, which found the Bell sand dry at 5,923 ft., total depth, and water in the Leo sand topped at 5,543 ft. There are both Sundance and Leo-sand producers to the east, north and west. No wells have been drilled to the southeast of it.

The Wertz gas field in Carbon County, in which an oil discovery in the upper Tensleep was made in 1936, became one of the major Wyoming oil pools in 1939 through the discovery of a deeper pay and the drilling of several wells which showed big production. In August 1939, No. 11-A Wertz, SE NW NW Section 7, was deepened from 5,987 ft. to 6,238 ft. and discovered a deeper pay in the lower Tensleep, the well responding with an initial production of 4,622 bbl. in 24 hours through the casing. The operator then went back into No. 10-A, the discovery, and deepened it from 5,886 ft. to 6,161 ft. and recompleted it for 300 bbl. an hour, or at the rate of 7,200 bbl. per day. No. 13-A Wertz, NE NW NW Section 7, the most northerly of the group, was drilled from the surface and made 129 bbl. an hour at 6,065 ft. It then was deepened to 6,230 ft. with a big increase in production, but figures were not released. It was beaned down to 803 bbl. per day. No. 12-B Wertz then was deepened from 5,807 ft. to 6,086 ft. and production increased to 3,607 bbl. in 24 hours through the 2½-in. tubing. The oil in the discovery well tested 35 gravity on the A.P.I. scale and has a paraffin base with a small per cent of sulfur. The limits of the oil pay have not been defined on any side.

The gas discovery of the year was made on the Horne Valley structure in Carbon County in Martin & Gaylord's No. 1 Horne Brothers, CNL NW SW Section 22-22n-78w. It tested horizons down to and through the Lakota at a total depth of 1,200 ft. and was plugged back to the base of the Muddy sand at 750-805 ft. and completed in December for 7,000,000 cu. ft. of gas per day with a rock pressure of 325 lb. It also had gas sands at 986-1,000, 1,005-36 and 1,118-53 ft., but these were not tested. The elevation is 6,602 ft.

The General Petroleum Corp., which made a discovery in the Lakota sand on the Cole Creek dome in Natrona County in 1938, drilled its second well a mile north in its No. 1 State, NW NE SE Section 16-35n-77w, and tested all horizons down to 8,707 ft., including the Sundance, where it was plugged and abandoned. Another test ½ mile northwest of the discovery will be drilled in 1940.

WYOMING

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas
Albany	1	0	1	0
Big Horn	9	7,282	3	1
Carbon	8	18,659	1	0
Converse	4	0	4	0
Fremont	8	16	5	1
Hot Springs	1	200	0	0
Johnson	1	0	0	1
Lincoln	1	0	1	0
Natrona	1	0	1	0
Niobrara	51	58,141	3	0
Park	8	722	2	4
Washakie	1	0	1	0
Sublette	12	441	1	0
Sweetwater	12	813	1	3
Weston	32	230	17	0
Total 1939	150	86,504	41	10

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	12	209	6	0
February	9	5,756	3	0
March	5	2,265	1	0
April	5	11,860	3	0
May	11	7,211	3	0
June	4	1,402	0	0
July	19	5,640	3	0
August	20	16,506	5	2
September	19	13,459	7	1
October	10	2,845	3	1
November	16	11,900	4	3
December	20	7,451	3	3
Total 1939	150	86,504	41	10
Total 1938	157	45,633	43	19
Difference	7	40,871	2	9

Montana

Principal developments in Montana during 1939 were as follows: A small oil discovery was made in Teton County, the well afterwards being recompleted as a gasser in an upper horizon. Approximately 320 acres were proven through extensions in the Cut Bank field proper and approximately 640 acres for oil and gas in the erratic North Cut Bank area. A small gas well was brought in 2 miles west of the nearest oil well in North Cut Bank. The Whitlash gas field in Liberty County was extended. The Dakota gas sand area in the Elk Basin field in Wyoming was extended over into the Montana side after giving evidence that an oil pool lies below the gas or on the flanks. The limits of the Dry Creek field were defined on the north.

The North Cut Bank area was the most prolific of new developments for the year. Chandler & Newell drilled No. 1 Hinstrager, C NE NW Section 24, completed in May 1939 as a 43,000,000 cu. ft. gas well in the Moulton sand at 2,603 ft., total depth. A southwest offset in Nadeau Brothers' No. 2 Government, C SW NW Section 24, had 2,000,000 to 4,000,000 cu. ft. of gas in the Moulton sand, but was completed in the Sunburst for 90 bbl. of oil first 48 hours. A west offset to the big gasser in the Huber-Montana Co.'s No. 3 Government, C NW NW Section 24, flowed 76 bbl. first 17 hours through the casing from the Sunburst sand at 2,662-2,704 ft. after casing off the Moulton sand at 2,514-78 ft., which showed for 55 bbl. in 13 hours on a drill-stem test.

The only other important development was in A. B. Cobb's No. 1 Vargo, C SE NE Section 19-37n-4w, ¾ mile north of his No. 1 State, the gasser on the east side of the developed area. It was a failure in the Cut Bank, and was completed for 6,500,000 cu. ft. of gas in the Sunburst at 2,670-80 ft. after plugging back.

Developments proved up around 640 acres for oil or gas in the several sands. While apparently separate from the Cut Bank field proper, it is generally carried as a part of that area.

Extensions of the Cut Bank field proper, which added approximately 320 acres to the proven area, mostly resulted from the progressive drilling of offsets except in the area to the southeast of the town of Cut Bank between the Big Bend pool and the gas field. Eighteen wells were drilled in that district and two of these carried the proven area into Section 34-33n-5w. The Glacier Production Co.'s No. 1 Stott, C SE NW Section 34-33n-5w, was completed in November at 3,105 ft. and about marked the limits of the pool on the southeast. It had the main pay in the Cut Bank sand at 3,090-3,100 ft. and swabbed 139 bbl. of water and 22 bbl. of oil first 24 hours. After failing to shut off the water, it was plugged and abandoned. In December the same company completed a north offset

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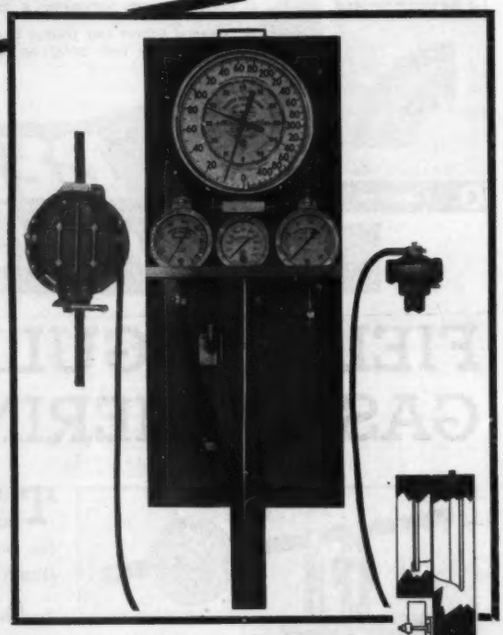

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(right) Side view of same instrument showing how direct back-to-back mounting eliminates use of copper tubing and extra fittings.

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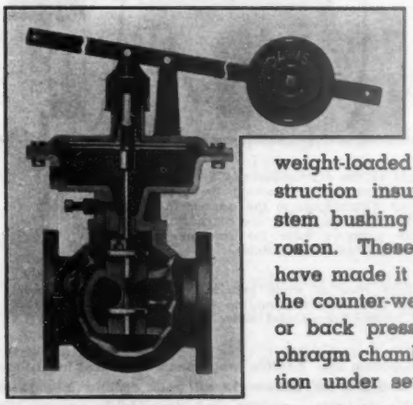

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to this well in its No. 1 Minette, C NE NW Section 34, at 2,980 ft., total depth. It had the Sunburst sand at 2,895-2,930 ft., with a show of oil at 2,920-30 ft. The 7-in. was cemented at 2,945 ft. and the Cut Bank sand was drilled at 2,940-80 ft. with the main pay at 2,950-80 ft. Oil rose 1,200 ft. in the hole and it swabbed 87 bbl. first 24 hours. A feature of the development in this area was the bringing in of a much better-than-average well in the Cut Bank sand and a flowing well in the Sunburst sand in the Glacier Production Co.'s No. 3 Corrigeux, C SE SW Section 21-33n-5w. This was the first important Sunburst well in that part of the field. It had the sand at 2,894-2,930 ft. and it flowed while drilling. After cementing the 8⅝-in. on top of the sand it swabbed 165 bbl. first 11 hours. It was then drilled on through the Cut Bank. The base of the Sunburst zone was found at 2,976 ft., and the Cut Bank sand was at 2,985-3,012 ft. After running liner, the sand swabbed 516 bbl. first 24 hours and at the end of the period was making 16½ bbl. an hour. The Santa Rita Oil & Gas Co. also had a Sunburst-sand producer in its No. 3 Stahl, C NE SW Section 21-33-5, which swabbed 65 bbl. first day from sand at 2,912-28 ft.

A Sunburst-sand producer was completed half a mile north of production in the field proper in the Glacier Production Co.'s No. 1 Larson, CEL NE NW Section 35-36n-6w, which swabbed 165 bbl. first 24 hours from that horizon at 3,012-28 ft. It had but slight saturation in the Cut Bank. The Texas Co. had a dry hole in this sand in a north offset in its No. 1 Ammerman, CWL SW SE Section 26, and water in the Cut Bank. It was plugged and abandoned. In this district the Glacier Production Co. completed Montana's largest gas well in December in its No. 2 Rigney, C SE SW Section 35-36n-6w, which blew in for 80,000,000 cu. ft. a day from the Moulton sand at 2,905-59 ft.

A small oil discovery was made in Teton County west of the Pondera oil field in September in R. C. Tarrant's No. 1 Hoeschen, NE SE Section 34-27n-5w, which had the top of the Madison lime at 2,283 ft. and was drilled to 2,298 ft. It was acidized with a total of 3,500 gal. and flowed 10 bbl. per day of 31-gravity oil. On the way down it showed considerable gas in the base of the Colorado shale and in November the operator decided it would be more profitable as a gas well and plugged it back to a sand at 1,560-1,640 ft. where it was recompleted for 2,700,000 cu. ft. per day.

MONTANA

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas
Blaine	1	0	0	1
Carbon	3	0	3	0
Cascade	1	0	1	0
Fallon	5	0	0	5
Glacier	75	6,951	9	8
Hill	1	0	1	0
Liberty	3	0	1	2
Meagher	1	0	1	0
Pondera	1	27	0	0
Teton	3	0	2	1
Toole	75	2,750	18	2
Yellowstone	1	0	1	0
Total 1939	170	9,728	37	19

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	13	305	4	1
February	7	725	1	0
March	10	413	0	3
April	16	1,314	4	1
May	8	509	0	1
June	23	1,878	7	1
July	14	934	1	4
August	24	781	5	4
September	10	281	2	1
October	11	465	3	2
November	19	980	5	1
December	15	1,143	5	0
Total 1939	170	9,728	37	19
Total 1938	109	5,391	27	13
Difference	61	4,337	10	6

Texas Contributed Month's Output to Stabilization

AUSTIN, Tex.—Texas operators in 1939 contributed nearly a month's production to the stabilization of the general oil industry, figures from the Texas Railroad Commission indicate.

Every month of the year Texas underproduced, the figures show. The greatest underproduction of any month was in August when, with a demand for 44,271,100 bbl., Texas produced only 25,364,154 bbl., which was 18,906,946 bbls. less than market demand during the shutdown.

Annual Review

TWENTY-SEVEN POOLS DISCOVERED, FOUR EXTENDED IN ILLINOIS

By STAFF CORRESPONDENT

TWENTY-SEVEN new pools were discovered in Illinois during the past year; furthermore, four fields discovered during 1937 and 1938 were extended through the development of lower pay horizons. Crude production from the basin fields rose from a daily average of 126,100 bbl. to 323,597 bbl. at the end of the year, an increase of 256 per cent. Total production of the state for the year was 91,797,241 bbl., Salem field produced 50,179,099 bbl., Louden field produced 18,350,888 bbl., and other basin fields produced 20,090,324 bbl. The number of wells producing rose from 2,120 to 4,778 during the same time, an increase of over 200 per cent. Daily average production per well increased from 59 bbl. to 67 bbl. per well.

The most outstanding developments of the year were the rise of the Salem pool to second place in the national list and the discovery of numerous pools and a variety of pay sands throughout the state. In addition to the discovery of six pay horizons on the eastern side of the state, Cypress production was obtained in several of the Central-basin fields, the Paint Creek stray sand was uncovered in the Louden field, the Aux Vases sand was

The year got off to a slow start as far as wildcatting was concerned, most of the operators concentrating proven to be better than expected in the Salem pool, and Salem, Sandoval, Sorento, Bartelso, and Centralia townsite fields were all proven to be productive in the Devonian lime. It is to this horizon that much of the work will be directed during the coming year and any increase in the state's production will be greatly dependent on the productivity of the Devonian.

As more wells were drilled to the McClosky lime in the Salem pool during the spring, it became increasingly evident that the field would become important as a national factor. Production mounted rapidly with many of the wells being completed for initials in excess of 4,000 bbl. daily and one well making over 6,000 bbl. on test. At the end of the year daily average production from the field's 1,522 wells was 181,000 bbl. Three 10-in. pipe lines were built to serve the field during the year in addition to the Illinois Pipe Line Co. system and the Central States Pipe Line Co., which were already serving the area. (Texas-Empire) One of the lines built during the year was expanding its facilities as the year closed and in addition the Illinois Pipe Line Co. was again enlarging its system.

their efforts on the development of pools discovered during the preceding year. Bad weather the first part of the year hampered both wildcat and field development. The first discovery of the year was the Cordes pool, opened by G. H. Blankenship, but it was several months before a second well could be drilled in the area to prove the existence of a good field. Development of the Benoist horizon continued active throughout the balance of the year and over 100 producing wells were completed.

Wayne County was credited with the second discovery of the year, Carl Robinson completing his No. 1 Felix, SW SE SE Section 27-2s-8e, in the McClosky lime for an initial of 460 bbl. Lack of pipe-line outlet hampered development of the area but the construction of a small refinery at Fairfield and the willingness of an independent crude buyer to take the oil, was an impetus to drilling throughout the summer. There were 36 wells in the pool at the end of the year and the field had a daily average production of approximately 2,200 bbl. The discovery at Barnhill encouraged more wildcatting by independents in Wayne and White counties.

Attention to the eastern side of the state was attracted by the discovery of the Griffin, Indiana, field just across the Wabash River. Development of the area was hindered by high water but as soon as the weather permitted major companies holding leases in the area began an active campaign on both sides of the river.

(Continued on Page 159)

DISCOVERY WELLS OF THE NEW FIELD EXTENSIONS IN ILLINOIS FOR 1939

Field, county, company and farm name—	Location	Total depth	Depth (ft.)	Name	Initial prod. (bbl.)	Type of discovery	Date of completion of discovery well
Barnhill, Wayne, Carl Robinson's No. 1 Felix	SW SE SE Sec. 27-2s-8e	3,409	3,386	McClosky sand	460	Field	2- 7-39
Calvin, White, J. W. Carter et al's No. 1 Johnson	SW NE NE Sec. 12-4s-10e	3,201	3,191	McClosky sand	210	Field	10-10-39
Cordes, Washington, G. H. Blankenship's No. 1 Dennis	NE SW NE Sec. 14-3s-3w	1,239	1,228	Bethel sandstone	25	Field	2- 7-39
Cowling, Edwards, C. G. McFadden's No. 1 Bump	C SE SW Sec. 34-2s-14w	2,643	2,625	Cypress sandstone	240	Field	10-10-39
Cravat, Jefferson, Vawder's No. 1 Kell	NW SW NE Sec. 9-1s-1e	2,084	2,065	Bethel sandstone	72	Field	8- 8-39
Dubois, Washington, Shell Oil Co., Inc.'s No. 1 Dix	C NW NE NE Sec. 19-3s-1w	1,370	1,359	Bethel sandstone	46	Field	11-28-39
Dundas, Richland, Pure Oil Co.'s No. 1 Coen	SE SE SE Sec. 36-5n-9e	2,930	2,830	McClosky sand	1,458	Field	9- 6-39
Enterprise, Wayne, Witcher Drilling Co.'s No. 1 Fitch	C N½ SE SE Sec. 3-1n-8e	3,100	3,087	McClosky sand	194	Field	4-18-39
Fairman, Marion, Shell Oil Co., Inc.'s No. 1 Lutz	NW NW SE Sec. 18-3n-1e	1,439	1,429	Bethel sandstone	107	Field	11- 7-39
Golden Gate, Wayne, New Penn Dev. Co.'s No. 1 Wagner	NW SW NE Sec. 30-2s-9e	3,441	3,432	McClosky sand	20	Field	3- 7-39
Grayville, Edwards, Kingwood Oil Co.'s No. 1 Johnson	SE SE NE Sec. 18-3s-11e	3,269	3,096	McClosky sand	415	Field	9- 6-39
Griffin, Wabash, W. N. Bartlett's No. 1 Stansfield	SW SE SE Sec. 19-2s-13w	1,719	1,713	Penn. sandstone	210	Extension	6-13-39
Hutton, Coles, W. R. Miller's No. 1 Griffin	SE NE NE Sec. 22-11n-10e	538	523	Penn. sandstone	10	Field	4-25-39
Iola, Clay, Duncan's No. 1 Liggett	SE NW SE Sec. 17-5n-5e	2,383	2,356	Aux Vases sandstone	42	Field	5- 2-39
Junction, Gallatin, Coates et al's No. 2 Greene	SE SE SE Sec. 17-9s-9e	1,794	1,757	Waltersburg sandstone	130	Field	5-16-39
Keensburg, Wabash, Neff's No. 1 Bump	NW NE NW Sec. 9-2s-13w	2,424	2,397	Cypress sandstone	286	Field	7-25-39
Mount Carmel, Wabash, Washburn's No. 1 Pfeifer	SW SW SW Sec. 13-1s-13w	1,955	1,940	Tar Springs sandstone	44	Field	6-27-39
Mattoon, Coles, Wheeler & Whisenant's No. 1 Micheal	SW SW NW Sec. 1-11n-7e	1,919	1,835	Cypress sandstone	18	Field	2-21-39
Mill Shoals, White, Nation et al's No. 1 Belvia McIntosh	C SE SW Sec. 31-3s-8e	3,405	3,360	McClosky sand	76	Field	7-11-39
New Harmony, White, Sun Oil Co.'s No. 1 Ford	NW NE NE Sec. 18-5s-14w	3,017	2,998	McClosky sand	20	Extension	7-11-39
Phillipstown, White, Sun Oil Co.'s No. 1 Garner	SW SE SW Sec. 1-5s-10e	2,964	2,942	Aux Vases sandstone	20	Field	10-24-39
Stewardson, Shelby, J. A. Aylward's No. 1 Wabash R.R. Right-of-Way	C N½ N½ Sec. 27-10n-5e	1,969	1,942	Aux Vases sandstone	28	Field	4-18-39
Stokes, White, Penn.-Ill. Oil & Gas Co.'s No. 1 Pyle	E½ SE NE Sec. 12-6s-8e	3,132	3,082	McClosky sand	423	Field	10- 3-39
Storms, White, Eason Oil Co.'s No. 1 Storms heirs	C W½ SE SW Sec. 14-6s-9e	2,992	2,215	Waltersburg sandstone	*12.3	Field	7-11-39
Tonti, Marion, Harvey et al's No. 1 Mercantile Bank	C N½ NE SE Sec. 33-3n-2e	2,193	2,160	McClosky sand	157	Field	5- 2-39
Whittington, Franklin, Gulf Ref. Co.'s No. 1 Hinman	SE SW NE Sec. 19-5s-3e	3,068	2,869	McClosky sand and St. Louis limestone	199	Field	7- 5-39
Springerton, White, P. F. Marrel's No. 1 Cox	NW NW NE Sec. 6-4s-8e	3,282	3,235	Aux Vases sandstone	368	Field	8-29-39
Centralia, Clinton, Louis Lilly's No. 1 D. Gum	Sec. 13-1n-1w	2,933	2,902	Devonian	†160	Extension	11-23-39
Bartelso, Clinton, Paul Mosebach's No. 1 Robinson	SE SW SE Sec. 5-1n-3w	2,431	2,398	Devonian	117	Extension	11-30-39
Salem, Marion, Kingwood Oil Co.'s No. 18 J. Shanafelt	NW NW NE Sec. 20-2n-2e	3,502	3,400	Devonian	1,550	Extension	9-14-39
Casner, Jefferson, Magnolia Pet. Co.'s No. 1 F. Oslager	SW SW SW Sec. 22-2s-1e	2,269	2,252	McClosky	294	Field	1-31-39
Sorento, Bond, Bond Oil Co.'s No. 1 Dresser	NW NE NW Sec. 21-6n-4w	1,849	1,848	Devonian	20	Extension	11- 7-39

*Million cubic feet of gas. †5 hours.

ILLINOIS

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Tl. 1939 (bbl.)
ADEN:													
Daily average	148	152	160	160	160	160	160	160	159	160	170	165	
Month	4,588	4,256	4,960	4,805	4,961	4,802	4,977	4,960	4,777	4,963	5,106	5,115	58,270
ADEN, NORTH:													
Daily average	1,673	1,552	1,949	1,686	1,838	1,888	1,818	2,034	2,450	2,561	2,450	2,241	
Month	51,863	43,456	60,419	50,579	56,929	55,552	56,364	63,079	74,599	79,411	73,463	69,471	735,785
BARNHILL:													
Daily average	.....	.....	28	74	.....	.....	.....	5,685	3,932	3,829	2,839	2,205	
Month	.....	.....	868	2,223	.....	.....	.....	176,247	111,796	118,702	85,193	68,351	563,380
BOYLESTON:													
Daily average	15	55	.....	15	307	361	493	699	828	1,030	919	803	
Month	465	1,540	.....	456	9,525	10,823	15,291	21,681	24,849	31,959	27,616	24,896	169,101
CENTRALIA:													
Daily average	6,957	7,329	6,434	6,613	6,667	6,621	5,834	6,018	6,093	5,688	5,342	4,989	
Month	215,667	205,212	199,454	198,526	206,248	198,635	180,862	186,573	182,805	176,324	160,490	154,654	2,265,450
CISNE:													
Daily average	7,243	6,128	4,735	3,374	2,821	2,916	2,241	2,262	2,227	2,204	2,184	2,073	
Month	224,533	171,584	146,785	101,228	87,451	87,505	69,492	70,128	66,814	68,345	65,456	64,266	1,223,587
CLAY CITY:													
Daily average	15,350	13,095	14,579	17,654	19,492	20,908	22,805	22,503	20,293	19,777	18,596	17,444	
Month	475,850	366,642	451,949	529,691	604,476	627,236	706,964	697,596	608,775	613,083	557,778	540,763	6,780,813

(Continued on Next Page)

ILLINOIS (Continued)

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
CLAY CITY, WEST:													
Daily average	.....	.....	110	109	119	90	115	102	75	85	60	58	
Month	.....	.....	3,410	3,246	3,696	2,708	3,573	3,181	2,263	2,642	1,801	1,799	28,319
CORDES:													
Daily average	5	3	5	456	1,777	1,528	1,502	1,860	1,989	2,399	1,675	1,434	
Month	155	84	155	13,660	55,106	45,832	46,555	57,617	59,671	74,357	50,196	44,455	447,843
CALVIN:													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	79	56	41	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,416	1,692	1,270	5,378
COWLING:													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	172	267	302	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	5,337	8,044	9,361	22,742
CRAVAT:													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	140	173	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4,225	5,366	9,591
DUNDAS:													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	376	959	2,447	3,054	
Month	.....	.....	.....	.....	.....	.....	.....	.....	11,279	29,695	73,428	94,674	209,076
DUBOIS:													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9	7	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	258	213	471
DIX:													
Daily average	1,278	1,914	1,958	2,023	2,151	2,016	1,851	1,835	1,930	2,009	2,155	2,055	
Month	39,618	53,592	60,698	60,680	66,690	60,478	57,393	56,870	57,910	62,307	64,628	63,702	704,566
ENTERPRISE:													
Daily average	.....	.....	65	822	1,517	3,051	2,989	2,406	4,755	4,339	3,356	2,465	
Month	.....	.....	205	24,653	47,037	91,524	92,537	74,582	142,665	134,524	100,685	76,418	784,830
FLORA:													
Daily average	387	421	428	383	329	337	219	323	342	289	374	352	
Month	11,997	11,340	13,268	11,441	10,226	10,113	8,787	10,031	10,342	8,845	11,200	10,914	128,504
FLORA, EAST:													
Daily average	42	40	38	24	55	40	40	40	41	58	110	94	
Month	1,302	1,120	1,178	721	1,695	1,199	1,240	1,241	1,248	1,800	3,298	2,916	18,958
FAIRMAN:													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	5	133	346	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	147	3,989	10,728	14,864
GRAYVILLE:													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	363	199	159	132	
Month	.....	.....	.....	.....	.....	.....	.....	.....	10,887	6,159	4,765	4,093	25,904
GRIFFIN:													
Daily average	.....	.....	.....	.....	.....	457	1,029	512	893	728	1,211	1,103	
Month	.....	.....	.....	.....	.....	13,711	31,884	15,869	26,781	22,551	36,370	34,195	181,361
INA:													
Daily average	18	10	22	16	23	15	8	7	16	8	8	7	
Month	558	280	682	474	700	473	244	259	478	239	236	214	4,817
IOLA:													
Daily average	.....	.....	.....	16	20	15	20	20	29	28	9	5	
Month	.....	.....	.....	485	620	450	620	620	870	837	270	158	4,930
JUNCTION:													
Daily average	.....	.....	.....	.....	.....	.....	44	94	106	121	171	152	
Month	.....	.....	.....	.....	.....	.....	1,379	2,914	3,180	3,968	5,130	4,710	21,281
KEENSBURG:													
Daily average	.....	.....	.....	.....	.....	.....	.....	190	2,499	7,339	8,892	7,437	
Month	.....	.....	.....	.....	.....	.....	.....	5,812	74,994	227,506	266,868	230,542	805,722
LEECH:													
Daily average	145	132	101	119	153	107	190	481	464	392	553	484	
Month	4,433	3,696	3,131	3,555	4,755	3,215	5,873	14,914	13,937	12,151	16,617	15,008	101,285
MARCOE:													
Daily average	.....	.....	.....	.....	.....	48	52	45	47	31	31	29	
Month	.....	.....	.....	.....	.....	1,434	1,631	1,394	1,395	956	944	897	8,651
MILL SHOALS:													
Daily average	.....	.....	.....	.....	.....	.....	115	205	624	888	1,099	1,028	
Month	.....	.....	.....	.....	.....	.....	3,576	6,347	18,708	27,528	33,038	31,874	121,071
LOUDEN:													
Daily average	26,768	29,440	32,395	38,455	44,060	45,781	54,038	56,811	64,198	66,325	70,373	73,586	
Month	828,815	824,317	1,004,245	1,153,659	1,365,864	1,373,446	1,675,182	1,751,137	1,925,937	2,056,190	2,110,932	2,281,164	18,350,888
MOUNT ERIE:													
Daily average	.....	.....	30	39	39	43	28	14	11	.....	.....	.....	
Month	.....	.....	930	1,171	1,211	1,296	869	452	345	.....	.....	.....	6,274
NOBLE:													
Daily average	3,426	2,903	2,781	2,377	2,315	2,221	1,999	1,976	1,819	2,090	2,671	2,389	
Month	106,206	81,284	86,211	71,326	71,819	76,623	61,986	61,268	54,599	64,794	80,128	74,023	880,267
NOBLE, NORTH:													
Daily average	768	1,074	1,032	1,513	2,155	1,772	2,022	2,301	2,277	2,348	2,424	2,313	
Month	23,808	30,072	31,992	45,391	66,830	53,150	62,885	71,333	68,942	72,792	72,792	72,702	672,739
NOBLE, SOUTH:													
Daily average	278	281	346	277	252	247	244	271	199	233	201	172	
Month	8,618	7,587	10,726	8,316	7,806	7,401	7,310	8,393	5,964	7,323	6,020	5,331	90,795
OLNEY:													
Daily average	1,132	1,287	1,081	915	887	809	726	714	692	821	898	811	
Month	35,092	36,036	33,511	27,486	27,508	24,289	22,509	22,149	20,761	25,469	27,020	25,145	326,975
OLNEY, SOUTH:													
Daily average	.....	.....	.....	.....	13	7	.....	6	6	.....	.....	.....	
Month	.....	.....	.....	.....	404	211	.....	186	202	.....	.....	.....	1,003
PATOKA:													
Daily average	1,018	1,069	1,043	1,455	1,477	1,445	1,597	1,533	1,492	1,425	1,353	1,265	
Month	31,558	29,932	32,333	43,763	45,772	43,354	49,493	47,532	44,754	44,196	40,543	39,212	492,442
PHILLIPSTOWN:													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	13	14	93	104	
Month	.....	.....	.....	.....	.....	.....	.....	.....	406	744	2,790	3,218	7,158
ROACHES:													
Daily average	.....	.....	.....	88	290	353	177	170	231	326	359	371	
Month	.....	.....	.....	2,653	8,959	10,585	5,482	5,291	6,939	10,119	10,794	11,499	72,321
SALEM:													
Daily average	62,703	77,781	86,296	88,848	117,471	131,899	162,010	185,095	200,592	179,761	169,687	182,045	
Month	1,949,993	2,183,468	2,684,693	2,671,449	3,647,801	3,956,998	5,022,325	5,737,956	6,017,773	5,572,696	5,090,554	5,643,393	50,179,099
SCHNELL:													
Daily average	193	164	178	147	162	117	109	98	99	99	82	71	
Month	5,983	4,592	5,518	4,418	5,014	3,527	3,400	3,026	2,980	3,049	2,472	2,188	46,167
SANDOVAL (Deep):													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	6,016	6,129	5,302	4,236	
Month	.....	.....	.....	.....	.....	.....	.....	.....	180,480	189,982	159,114	130,312	659,888
SORENTO:													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25	32	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	750	996	1,746
STEWARDSON:													
Daily average	.....	.....	.....	8	23	16	15	15	16	8	9	7	
Month	.....	.....	.....	233	709	476	474	477	481	239	270	212	3,571
STOKES:													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	119	447	689	824	
Month	.....	.....	.....	.....	.....	.....	.....	.....	3,594	13,868	20,646	25,549	63,657
STORMS:													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	476	893	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14,290	27,672	41,962
ST. JAMES:													
Daily average	742	946	952	941	1,045	1,049	1,123	1,351	1,428	1,668	1,625	1,532	
Month	23,002	26,488	29,512	28,172	32,434	31,475	34,811	41,875	42,844	51,709	48,751	47,498	438,571
TONTI:													
Daily average	.....	.....	.....	.....	99	227	740	1,763	3,092	5,931	8,184	7,263	
Month	.....	.....	.....	.....	3,069	6,810	22,940	54,653	92,760	183,663	245,523	225,156	834,574
WHITTINGTON:													
Daily average	.....	.....	.....	.....	.....	.....	29	29	18	18	16	14	
Month	.....	.....	.....	.....	.....	.....	898	928	463	479	465	431	3,664
OLD FIELDS:													
Daily average	7,657	8,063	7,863	7,980	7,978	9,912	9,334	9,377	9,417	9,284	9,392	8,547	
Month	237,367	225,764	243,753	239,406	247,318	286,239	289,464	290,701	282,511	287,811	281,763	264,833	3,176,930
Daily average	138,112	154,012	164,858	176,796	215,891	236,052	275,783	308,707	342,127	332,319	329,280	337,147	251,499
Total 1939	4,281,471	4,312,342	5,110,586	5,303,866	6,692,633	7,081,570	8,549,270	9,569,852	10,263,808	10,301,885	9,878,401	10,451,557	91,797,241
Total 1938	1,146,504	1,119,440	1,044,793	1,327,440	1,445,623	1,406,100	1,672,636	1,910,127	2,309,040	2,629,948	2,786,880	3,965,303	22,763,834

It took until after the middle of the year to develop any new fields but after that they followed in rapid succession. The McClosky lime led in importance at first but it soon developed the Chester series was also a major feature in the area, and production was discovered in the Aux Vases, Cypress, Tar Springs, and Waltersburg sands. The Bethel has not yet been proven productive in the area. Another interesting feature was the discovery of production in the Biehl sand in the well which extended the Griffin field into Illinois; this formation is of Pennsylvanian age and in some spots has made a good pay zone

White County entered the list of producing counties early in July with the discovery of McClosky production near Mill Shoals. The discovery well was the Nations and others' No. 1 Belva McIntosh, C SE SW Section 31-3s-8e, which made 20 bbl. per hour from a total depth of 3,360 ft. The second well drilled in the pool, an offset to the discovery, was bottomed in the Aux Vases sand and was completed for 685 bbl. in 15 hours from a total depth of 3,258 ft. This caused operators who had looked on White County as a little out of the picture to take a second glance at the area and the most hectic leasing campaign in the history of Illinois got under way. Major companies and independents that had missed the first opportunity in Illinois saw their chance to get a foothold in the state. Interest in the area was sustained by the discovery of Calvin, Phillipstown, Stokes, New Harmony and Storms fields.

Biggest townsite play of the year developed in Keensburg in Wabash County, where good but spotty Cypress-sand production was discovered by Neff and others' No. 1 Bump, NW NE NW Section 9-2s-13w, which had an initial of 286 bbl. Independents rushed in to lease town lots and the number of producing wells and daily average production rose rapidly to 8,892 bbl. in November.

Productive limits of the Illinois basin were extended considerably by the discovery of crude production in Gallatin County in the southeastern side of the state. The discovery well was the Coates and others' No. 2 Greene, SE SE SE Section 17-9s-9e, which made 130 bbl. initially from the Walterburg sand at 1,757-94 ft. By the end of the year three other producers had been drilled and the production of the pool was 171 bbl. daily. While the field in itself is not so important, it does indicate the productive limit of the basin is greater than many believed and from the leasing play that has been in progress, further development in the area may be expected.

Most important discovery in the Central-basin area was Pure Oil Co.'s No. 1 Coen, SE SE SE Section 36-5n-9e, Richland County, which topped the McClosky pay at 2,830 ft. and was drilled to 2,930 ft.; the well made 1,358 bbl. per day on its initial test, the highest initial of any pool opener of the year. Further development in the field has resulted in equally good wells and at the present time the field is producing approximately 3,000 bbl. from 20 wells.

Rise in the state's production has caused an increase in the demand for state regulation by the major companies and larger independents; small leaseowners and independent refiners and buyers of crude are opposing any attempt to regulate the state's production. The situation appeared to be resolving itself late in the fall with the submission of an "agreed" bill to the legislative committee which supposedly had the support of the majors and three independent organizations. Shortly after the bill was submitted another group was organized which announced its opposition to the measure. Passage of a bill this year depends on whether a special session is called by Gov. Henry Horner, whether a bill to regulate production is included in the call, and whether oil men can make enough political medicine to obtain passage of such an act.

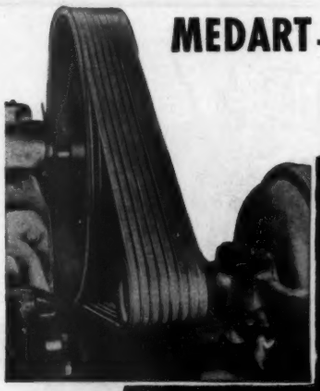
ILLINOIS

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas
Alexander	1	0	1	0
Adams	2	0	2	0
Bond	12	20	11	0
Brown	2	0	2	0
Clark	19	150	15	0
Clay	218	78,771	11	0
Clinton	53	1,863	24	0
Champaign	3	0	3	0
Christian	2	0	2	0
Crawford	7	69	4	0
Coles	16	33	3	0
Cumberland	11	0	11	0
Douglass	2	0	2	0
Edgar	5	0	5	0
Edwards	34	1,640	22	0
Effingham	16	0	16	0
Fulton	3	0	3	0
Fayette	960	218,101	62	3
Franklin	7	200	5	0
Gallatin	19	631	13	0
Greene	2	0	2	0
Hamilton	5	472	3	0
Hancock	3	3	2	0
Henderson	1	0	1	0
Jasper	9	10	8	0
Jersey	1	0	1	0
Jefferson	63	4,556	33	0
Jackson	1	0	1	0
Johnson	2	0	2	0
Knox	1	0	1	0
Lawrence	43	152	21	14
Livingston	1	0	1	0
Morgan	1	0	1	0
Macoupin	4	0	4	0
Moultrie	4	0	4	0
Macon	1	0	1	0
Madison	9	6	8	0
Marion	1,245	428,082	63	0
McDonough	7	7	6	0
Menard	1	0	1	0
Monroe	12	180	7	0
Montgomery	11	2	10	0
Peoria	1	0	1	0
Piatt	1	0	1	0
Perry	11	0	11	0
Pike	1	0	1	0
Randolph	4	0	4	0
Richland	87	21,103	11	0
Saline	6	0	6	0
Sangamon	2	0	2	0
Schuyler	3	0	3	0
Shelby	13	0	13	0
St. Clair	37	1,381	14	0
Tazewell	2	0	2	0
Wabash	204	25,981	48	0
Washington	126	7,321	37	0
Wayne	174	37,242	35	0
White	85	11,013	29	1
Warren	1	0	1	0
Williamson	5	0	5	0
Total, 1939	3,582	838,989	621	18

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	303	58,528	41	3
February	243	42,123	39	3
March	186	32,017	39	1
April	280	46,914	58	0
May	306	73,169	48	1
June	293	80,509	49	1
July	365	111,242	43	1
August	259	70,308	47	0
September	314	75,046	54	2
October	371	74,263	76	3
November	346	65,656	75	0
December	316	108,214	52	3
Total, 1939	3,582	838,989	621	18
Total, 1938	2,233	489,590	407	19
Difference	1,349	348,599	214	1



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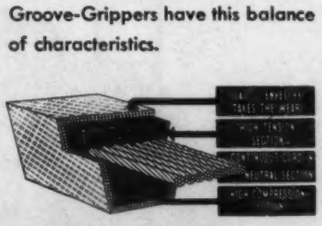

MEDART

Nebraska Discovery Is Feature Of Forest City Basin Play

By DAL DALRYMPLE

THE presence of oil in the Forest City basin was proven and Nebraska was given its first oil pool in November 1939, when Hunton-lime production was found near Falls City, Richardson County, in the southeastern part of the state. That discovery encouraged operators and gave new life to a basin play that was beginning to bog down because of completion of numerous dry holes in Missouri and a few in Kansas. No completions had been recorded in the Iowa sector of the basin.

The Nebraska discovery, Pawnee Royalty Co.'s No. 1 Boice, C NE NE Section 18-1n-16, about 2½ miles west of Falls City, was averaging about 100 bbl. of oil and 250 to 300 bbl. of water daily as the year ended. Two other wells were being drilled in Richardson County and additional tests were expected to be started early in 1940. Hunton lime was found at 2,276-92 ft.

The Forest City basin lease boom began in the latter part of 1938 and by the spring of 1939 it was estimated that approximately 6,000,000 acres had been leased in northern Missouri, southern Iowa, southeastern Nebraska and northeastern Kansas. It was called the "great oilless oil boom," for the big lease play preceded the drilling of wells. St. Joseph, Mo., was the center of the activity, with individual lease and geologic groups working out of smaller towns in the basin.

First Missouri Test

The first basin test to be started as a result of the leasing campaign was spudded March 7 at the J. H. Everitt and others' No. 1 Spring, wildcat on the northeast edge of Mound City, Holt County, Missouri. An elaborate ceremony marked the spudding of that test, with delegations of citizens from St. Joseph and other basin towns participating. Mechanical difficulties and fishing jobs delayed progress and it was not until midsummer that the wildcat finally was abandoned at about 2,800 ft., total depth. Several showings of oil and gas were reported, but operators withheld information. Later, it was said no oil or gas was found. The first well in the Kansas sector was started early in the year by W. M. McKnabb and associates west of Topeka, in Shawnee County, at the southwest extremity of the basin. It was dry.

Additional wildcats were started soon after the Mound City well had spudded and by early summer tests were being drilled in several northern Missouri counties, and the activity had spread to northeastern Missouri. A few tests were started in northeastern Kansas and three operations were under way in Iowa before the end of the year.

A total of 46 wells were completed in Missouri, not including several tests that were abandoned before advancing farther than the spudding stage. None of the Missouri tests discovered oil in commercial quantities, but showings of oil were found in several of the wells. Failures were completed in Adair, Andrew, Bates, Cass, Charlton, Clay, Clinton, Daviess, Harrison, Hickory, Holt, Jackson, Johnson, Livingston, Platte, Putnam, Ray, Schuyler, Shelby and Sullivan counties.

MISSOURI

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas
Adair	3	0	3	0
Andrew	3	0	3	0
Bates	1	0	1	0
Carroll	1	0	0	1
Cass	2	0	2	0
Charlton	1	0	1	0
Clay	5	0	4	1
Clinton	3	0	1	2
Daviess	1	0	1	0
Harrison	1	0	1	0
Hickory	1	0	1	0
Holt	1	0	1	0
Jackson	4	0	4	0
Johnson	3	0	3	0
Livingston	1	0	1	0
Platte	9	0	4	5
Putnam	2	0	2	0
Ray	1	0	1	0
Schuyler	1	0	1	0
Shelby	1	0	1	0
Sullivan	1	0	1	0
Total	46	0	37	9

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
May	3	0	3	0
June	3	0	3	0
July	5	0	5	0
August	7	0	7	0
September	8	0	5	3
October	10	0	7	3
November	5	0	4	1
December	5	0	3	2
Total	46	0	37	9

NEBRASKA

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas
Hitchcock	1	0	1	0
Richardson	1	130	0	0
Total	2	130	1	0

NEBRASKA OIL DISCOVERY, 1939

Falls City field, Richardson County, Section 18-1n-16e, Pawnee Royalty Co., November, Hunton formation, depth 2,292 ft., initial production 230 bbl.

Gas Reserves Tapped

The Missouri activity was not entirely without result, however, gas reserves being found in Carroll, Clay, Clinton and Platte counties. A sizable gas field was being developed in Platte County, northwest of Kansas City.

Operations in Missouri were not confined to the Forest City basin. In addition to the northeastern Missouri tests, a few wells were drilled in the central counties and at least two operations were started in the southeastern corner of the state. There was some activity in the Nevada district of southwestern Missouri, where there has been shallow oil production

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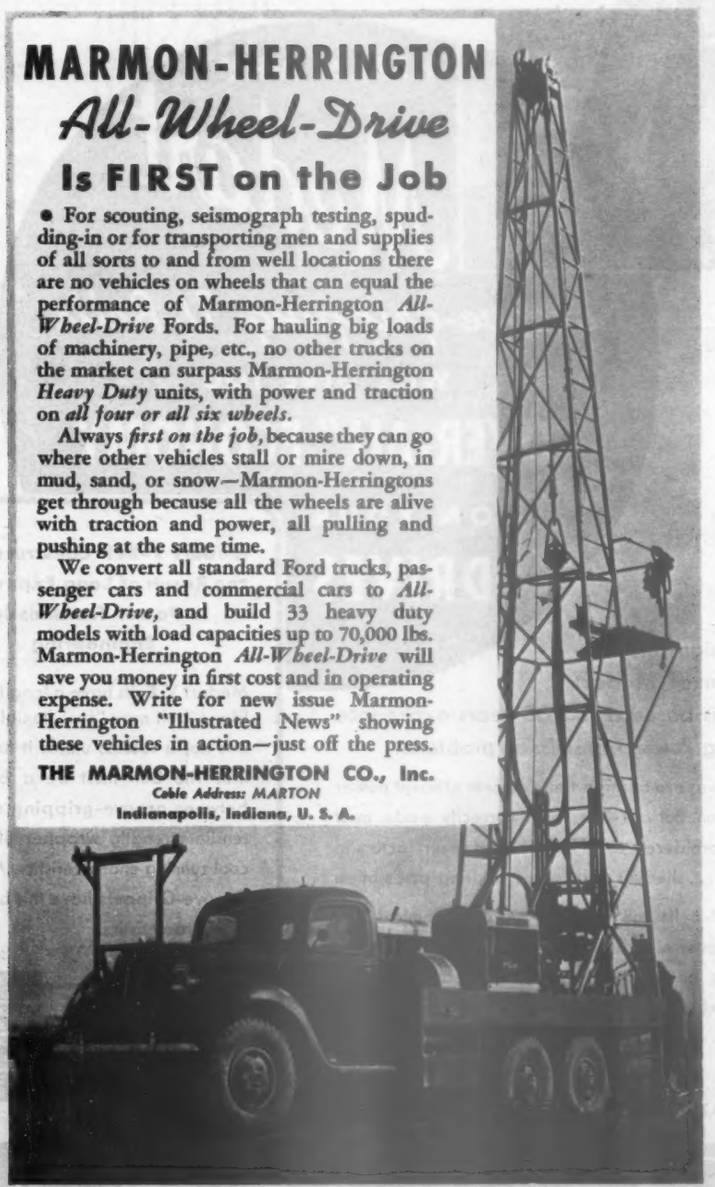

for many years. That production generally has been considered as an extension of the eastern Kansas fields. A deep test started near Nevada was abandoned.

Both oil and gas was found in the Gardner district of Johnson County, Kansas, shallow production being found in Squirrel and Bartlesville sands. Several 25 to 75-bbl. oil wells were completed in the Gardner and West Gardner pools, and gas areas were opened in northern and southern Johnson County. There was difference of opinion as to whether the Johnson County pools were in the basin, some saying they were on the southern flank of the basin and others considering them as a northward extension of the eastern Kansas fields.

Arbuckle lime was tested at a wildcat drilled near the city of Atchison, in the Kansas county of that name, but failed to find oil. Failures also were recorded in Jefferson and Douglas counties. The Carter Oil Co. drilled slim-hole tests in Atchison and Brown counties for geological information, but the results were not announced.

Jefferson County Gas Well

As the year ended one northeastern Kansas wildcat was due for completion as a gas discovery. This was McLaughlin Sons, Inc.'s No. 1 McLaughlin, Section 4-10-20, Jefferson County, which found from 6,000,000 to 8,000,000 cu. ft. of gas in Bartlesville sand topped at 1,422 ft. Operators passed up the gas and drilled ahead in quest of deeper oil sands, but had a difficult fishing job at 1,915 ft. and were expected to plug back and complete as a gas well, then start another deep oil test nearby. Development of a gas pool in the area seemed assured.

Late in 1939 a wildcat was started south of Creston, Union County, Iowa, by Phillips Petroleum Co. It was drilling below 1,380 ft. in Mississippi lime as the year ended. Earlier in the year, Fletcher Hunt had started a wildcat in Guthrie County, but it was shut down at 584 ft. in Mississippi lime while the operator worked on a lease holdout. Iowa's third test, started by Oscar Gruber in Fremont County, drilled to 1,065 ft. and has been shut down several weeks.

The Nebraska discovery came as a tonic for weary basin operators who had seen dry hole after dry hole completed, but who continued their exploration while pessimists insisted there was no oil in the basin other than that found in filling stations. Missouri and Kansas areas adjacent to Richardson County, Nebraska, especially benefited from the strike through a revival of leasing and preparations for additional tests to be drilled in 1940.

Development Delayed

Although two additional tests were started in Richardson County soon after the Falls City discovery, two developments served to delay additional drilling. One was the cold weather which set in soon after the discovery. The other cause for delay was the action of optimistic landowners who raised their asking prices for leases to levels which the oil man thought unreasonable. It seemed certain, however, that several additional tests will be started in the Falls City district with the arrival of spring weather.

From the inception of the leasing campaign, the Forest City basin play largely has been carried on by independent operators. They started the leasing on a big scale back in August 1938, and then major companies went in for protection, leased some big blocks and did considerable geophysical work. The major company indifference to drilling was disappointing, however. Perhaps a half dozen of the basin wildcats had major company support, but in general they let the independents solve their drilling and financial problems without help. As a result, many of the wildcats that were drilled were inadequately financed, had poor equipment and were without benefit of adequate geological information.

Despite failures and misfortunes of 1939, many basin enthusiasts look to 1940 to justify their faith in the area. The ice has been broken in Nebraska with the Falls City discovery, and there are those who believe additional discoveries will be made this year. Few expect to find big fields, but it is thought several small pools may be uncovered. A second oil discovery in any of the four states undoubtedly will result in increased drilling activity over a large area. Without that, several new tests are expected to be started in the spring, with Missouri, Kansas, Nebraska and Iowa sharing in the exploration.

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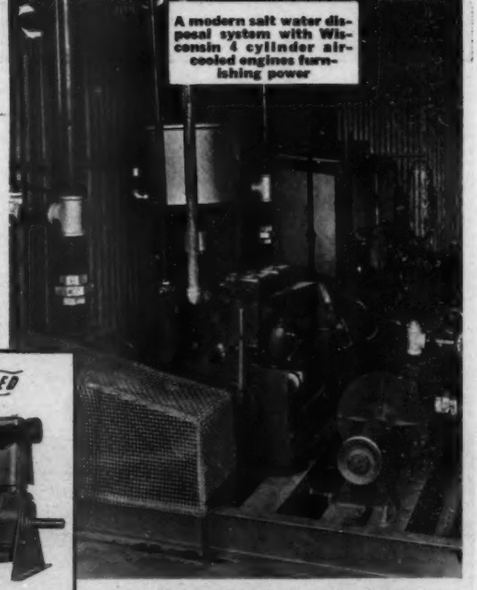
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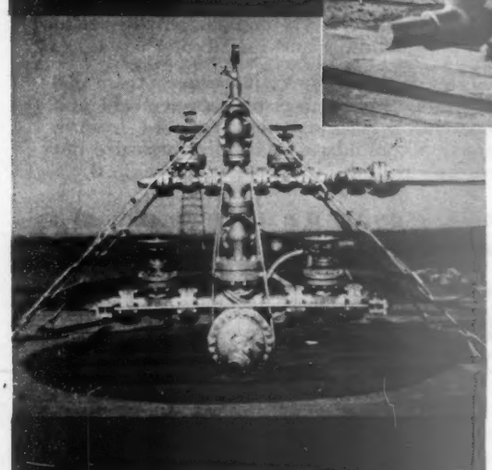

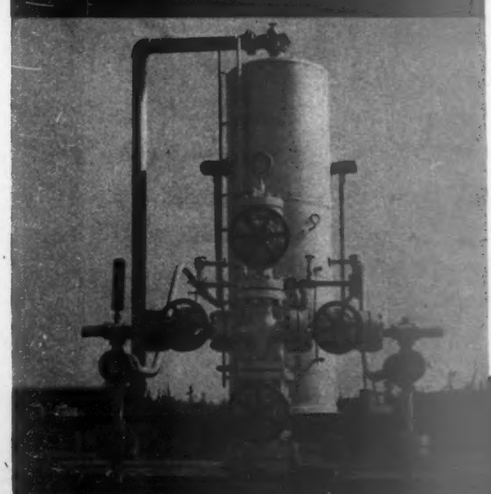

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Annual Review

CALIFORNIA ADDS FOUR OIL FIELDS IN 1939; EXTENSIONS OF POOLS

By L. P. STOCKMAN

DISCOVERY of four oil fields, Northeast Coalinga in Fresno County and Arvin, Paloma and Strand in Kern County; application on June 1 of a new method of curtailment embracing a uniform method of allocation; defeat of compulsory regulatory control legislation by a vote of the general electorate; initiation of a federal grand jury investigation to determine possible violation of the Sherman antitrust law; and return of a conspiracy indictment against 36 companies and 2 trade associations and an encouraging withdrawal in stocks due to more effective curtailment, were important developments in California during 1939.

The decline in stocks that started in May 1939 marked the turning point toward alleviation of a serious situation resulting from consistent accumulation of stocks as the withdrawal in May was the first substantial draft on stocks since November 1937.

Gasoline consumption in Pacific Coast territory, while larger than during the preceding year, did not come up to expectations, and offshore shipments, reflecting increased liftings in the Gulf Coast area and Mexican crude consigned to Japan, were substantially below similar movements in 1938.

The outlook for 1940 is clouded with many uncertainties, although all indications point to a decrease in offshore shipments to Japan during the next 12 months. The price of fuel oil was cut 10 cents per barrel on May 10. From January 1, 1939, to May 10 the base price at Los Angeles Harbor was $1.00 per barrel and from May 10 to December 31 the base price was 90 cents per barrel. Crude oil production during 1939 was substantially below last year and there were considerably fewer wells completed. Late in the year, the Central Committee of California Oil Producers, official curtailment and proration group, appointed a committee to investigate the possibility of effecting a reduction in drilling operations and the retardation of all work involving deep-zone development.

Crude-Oil Production

Late in December, Kettleman North Dome Association suggested a plan to all other operators in the Kettleman North Dome for development and production of the Eocene zone, which if adopted, will reduce field production about 7,500 bbl. daily. This plan, which is in conformity with the newest phase of the voluntary curtailment program, since it is based on volumetric relationships of quarter-section operating units, will tend to discourage drilling operations and reduce current production. The plan under consideration sets up quarter sections as Eocene operating units. Eocene production from each quarter section to be governed by characteristics of the Eocene formation underlying any given section in comparison with that underlying the master quarter section. The Huffman lease of Superior Oil Co. in the extreme western end of the field has been selected as the master Eocene operating unit, and if the plan is adopted, all other quarter sections in the field will be produced in relation to that master quarter section.

The plan has been submitted to all operators in the field, including Standard Oil Co., Union Oil Co., Superior Oil Co., and R. S. Lytle, and since none of them has criticized the fundamentals of the plan, the association has hopes that the new method will be adopted and put into operation early in 1940.

New Fields

The first discovery of 1939 was made in the Arvin district of Kern County on February 24 when No. 1 Jewett of Standard Oil Co., in Section 16-31-29, was finished, flowing 2,875 bbl. of clean 31.7-gravity oil and 900,000 cu. ft. of gas per day from the Chanac formation of lower Pliocene age. This well was bottomed at 6,270 ft. and finished with an 8⅝-in. water string cemented at 6,070 ft. and 290 ft. of 6⅝-in. liner, including 204 ft. of perforated and 6,242 ft. of 2½-in. tubing. No. 1 Jewett was a joint test of Standard Oil Co., Superior Oil Co. and Texas Co., and although the well was located on the Jewett lease of Standard Oil Co., and subsequently became the property of that company, ac-

CALIFORNIA CRUDE-OIL PRODUCTION—JANUARY-DECEMBER 1939, INCLUSIVE

	January	February	March	April	May	June	July	August	September	October	November	December	Ttl. 1939
Northern fields—													
Arvin		2,711	5,061	13,694	20,857	28,303	42,340	53,735	64,897	63,754	76,290	82,460	454,092
Belridge—North	388,929	343,201	370,953	346,630	363,032	361,258	367,110	378,201	354,471	367,767	354,565	369,799	4,365,916
Belridge—South	34,542	32,796	37,423	33,360	34,564	33,826	35,164	38,435	34,018	36,037	34,195	36,735	421,095
Canal	121,873	114,277	138,459	127,843	143,185	157,015	171,137	177,593	169,768	181,488	168,429	183,179	1,854,246
Canfield Ranch	976	682	1,428	1,053	586	1,550	3,168	2,788	2,410	2,657	2,234	2,170	21,702
Coalinga	299,322	273,481	328,444	334,254	370,004	404,691	593,432	628,797	614,573	644,950	580,991	651,682	5,724,621
Cole's Levee	5,307	5,027	6,983	8,767	12,601	20,590	25,855	37,011	52,167	50,553	53,670	79,810	358,341
Edison	77,761	68,289	70,072	69,180	74,072	68,289	70,273	68,428	63,994	69,556	69,280	71,611	840,805
Elk Hills	312,707	284,901	313,810	296,762	305,724	318,143	331,072	323,860	310,487	314,801	340,540	380,804	3,833,611
Fruitvale	219,706	204,534	218,640	203,271	203,025	192,174	191,725	192,302	189,130	189,573	182,167	187,519	2,373,766
Greeley	64,474	58,509	55,537	48,621	61,197	59,413	70,289	70,520	68,929	80,933	83,584	89,249	811,235
Kern River	348,615	306,276	348,846	334,456	326,433	328,505	352,641	364,684	358,758	355,335	350,847	350,232	4,125,628
Kettleman Middle dome	1,157	1,104	1,142	1,008	974	859	864	797	849	75			8,329
Kettleman North dome	1,809,875	1,619,227	1,739,082	1,591,704	1,647,345	1,575,402	1,623,982	1,618,791	1,567,893	1,613,294	1,531,690	1,618,324	19,556,609
Lost Hills	100,361	93,028	106,009	99,160	96,808	94,601	101,825	105,726	107,172	110,739	102,606	101,463	1,219,498
McKittrick	114,758	105,328	120,856	88,194	113,399	111,458	113,366	117,589	111,220	112,485	107,200	111,135	1,326,988
Midway-Sunset	1,725,620	1,567,399	1,718,505	1,588,667	1,646,753	1,574,592	1,560,102	1,541,442	1,471,169	1,508,246	1,484,149	1,560,385	18,947,029
Mountain View	272,635	258,817	266,847	252,834	252,977	253,370	253,494	251,130	237,452	237,376	22,0760	228,036	2,985,728
Mount Poso	419,256	385,686	411,456	393,680	380,892	333,907	344,302	330,890	329,271	336,843	314,740	326,678	4,307,601
Paloma								262	4,975	6,847	5,737	5,890	23,711
Rio Bravo	244,462	216,153	252,491	251,963	238,842	229,126	241,840	242,868	229,758	243,151	237,545	243,939	2,872,138
Round Mountain	375,374	349,581	380,030	327,911	329,847	255,911	259,320	265,639	255,269	249,247	250,490	250,232	3,528,851
Strand						6,097	7,690	10,551	19,699	22,542	31,993	36,322	134,394
Ten Section	271,046	250,745	282,373	259,560	276,778	271,175	284,884	291,338	271,433	265,406	263,920	256,969	3,245,627
Tupman	9,419	7,704	8,186	15,584	15,517	14,752	14,939	15,468	17,499	18,459	20,983	26,972	185,482
Wasco	21,766	19,496	27,982	21,563	37,953	33,858	37,746	42,005	45,786	41,398	38,121	34,964	402,638
Wheeler Ridge	11,825	11,179	11,617	9,626	10,160	9,892	10,023	10,004	9,906	10,288	9,888	10,230	124,538
Coastal fields—													
Capitan	84,947	76,203	82,649	74,506	75,219	72,473	72,177	72,515	66,907	69,123	64,760	64,945	876,424
Elwood	143,907	132,116	143,647	127,695	131,997	114,722	126,944	128,813	123,585	127,788	119,100	122,257	1,542,571
Rincon	119,241	102,666	90,626	87,458	109,130	112,009	77,916	81,541	104,604	115,832	112,091	124,806	1,237,920
San Miguelito	76,931	63,972	72,058	72,374	78,285	73,929	78,186	86,153	86,153	86,833	86,376	92,287	953,537
Santa Barbara	10,601	10,669	8,946	8,387	9,290	8,908	9,934	8,311	8,223	9,259	10,245	9,750	112,523
Santa Maria	515,026	417,461	533,279	557,337	499,595	593,137	630,394	505,751	558,077	549,270	486,678	424,016	6,270,023
Summerland	604	952	669	931	1,289	783	992	827	651	738	1,025	930	10,391
Ventura Avenue	1,044,011	959,633	1,044,235	955,831	1,088,602	1,162,620	1,137,781	1,102,950	1,048,706	1,128,162	1,093,674	1,135,747	12,941,952
Ventura-Newhall	170,985	156,093	180,683	178,201	178,463	185,877	199,807	218,050	206,312	219,950	212,130	218,860	2,325,411
Watsonville	930	840	930	900	930	900	930	930	900	930	900	900	10,920
Southern fields—													
Brea Olinda	173,586	157,142	174,729	166,959	169,429	173,133	176,619	177,576	171,652	179,492	170,898	174,840	2,066,055
Coyote—East	80,109	72,228	78,346	67,217	69,201	76,211	79,766	82,612	78,767	80,178	87,352	89,955	941,942
Coyote—West	245,377	223,585	247,070	231,352	232,829	281,332	310,439	283,125	279,332	311,196	232,124	192,820	3,070,581
Dominguez	673,179	595,245	658,930	634,435	665,158	539,367	545,366	553,888	544,490	570,278	564,336	581,281	7,125,953
El Segundo	124,061	105,180	106,993	99,067	102,090	95,626	92,463	92,384	87,372	89,932	86,756	85,622	1,167,566
Huntington Beach	851,735	779,655	889,011	875,013	921,922	794,722	783,392	789,728	786,851	830,852	814,690	854,205	9,971,806
Inglewood	400,947	355,368	392,048	350,898	365,520	381,763	395,497	389,530	372,820	403,236	329,534	407,774	4,607,935
Lawndale	1,945	1,990	2,215	2,016	1,897	980	1,446	1,387	1,001	1,477	1,403	1,425	19,182
Long Beach	1,525,810	1,391,985	1,503,841	1,456,771	1,497,634	1,372,290	1,399,526	1,401,651	1,349,266	1,399,340	1,330,944	1,367,069	16,996,027
Los Angeles—Salt Lake	15,406	15,456	15,604	14,804	15,692	14,466	15,490	17,713	16,236	16,324	16,494	16,740	190,415
Montebello	451,473	386,158	465,635	464,868	542,412	602,042	576,883	723,853	771,769	807,469	822,321	837,062	7,451,945
Playa Del Rey	165,756	150,083	164,321	156,030	153,113	153,811	153,878	146,385	140,398	141,970	135,463	131,285	1,792,493
Potrero	28,760	29,790	27,239	28,623	32,941	33,924	34,096	38,550	36,411	37,844	41,368	42,749	412,295
Richfield	252,057	228,447	263,872	256,567	266,712	269,097	272,793	271,266	261,703	268,770	255,177	265,918	3,132,379
Rosecrans	464,685	443,950	472,547	406,007	397,338	345,217	333,535	329,447	312,270	329,553	314,694	319,238	4,468,481
Santa Fe Springs	922,327	806,734	877,831	833,717	850,160	825,264	849,462	844,376	810,610	825,419	797,427	809,906	10,055,233
Seal Beach	236,612	213,860	235,959	220,677	227,478	210,744	213,838	220,560	213,140	221,470	210,280	218,288	2,642,906
Torrance	610,531	595,231	678,666	651,628	608,155	542,801	520,428	493,915	452,355	440,790	415,118	402,194	6,411,812
Whittier	30,618	27,602	30,545	29,109	31,487	29,092	29,450	25,886	26,848	30,267	27,928	31,020	352,852
Wilmington	2,600,136	2,338,527	2,638,529	2,635,130	2,786,479	2,415,298	2,575,159	2,660,826	2,582,531	2,671,282	2,561,487	2,650,252	31,115,616
Total 1939	19,274,079	17,413,952	19,283,785	18,403,853	19,073,972	18,221,295	18,803,140	18,934,353	18,462,923	19,098,804	18,382,277	18,970,932	224,328,365
Daily average	621,744	622,105	622,058	613,462	615,289	607,376	606,553	610,786	615,431	616,091	612,742	611,966	614,598
Total 1938	22,008,235	20,607,735	22,441,293	21,647,430	21,346,950	20,170,317	20,493,544	20,769,860	19,921,957	20,423,178	19,883,988	20,215,516	249,930,003
Daily average 1938	709,943	735,991	723,913	721,581	688,611	672,343	661,082	669,995	664,065	658,812	662,800	648,855	684,463
Daily average 1937	581,666	589,837	594,445	627,201	656,951	663,796	663,736	673,422	685,184	694,481	701,988	704,970	653,481
Daily average 1936	680,097	587,428	565,839	572,671	576,643	581,509	574,500	578,215	579,170	578,775	582,077	583,835	586,812

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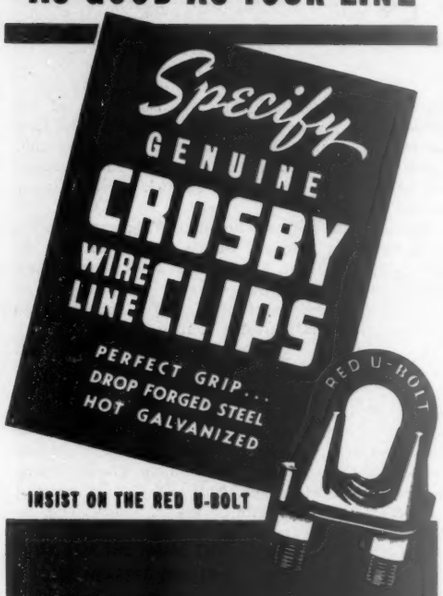

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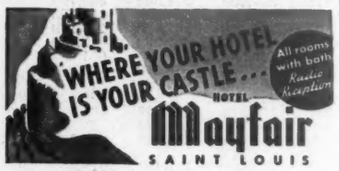

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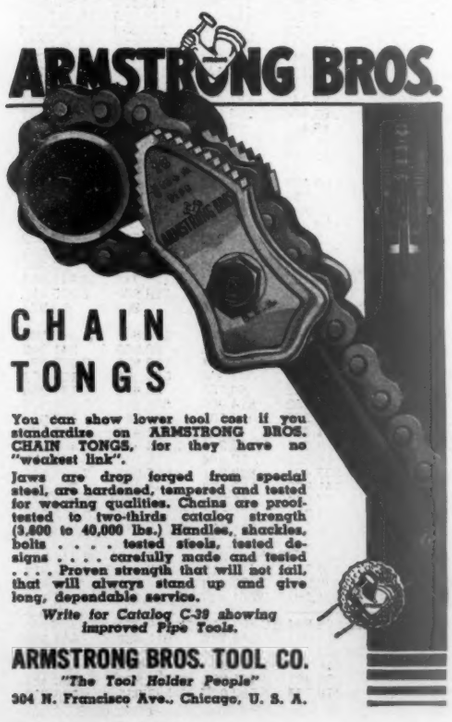

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tual drilling was done by Superior Oil Co. The producing horizon is the lower part of the Chanac formation, consisting of interbedded oil sand and grayish-green clays and is approximately the same zone that is productive in the Mountain View field to the northwest. Closure appears to be effected on the east by the Mountain View fault, which likewise traps oil in the Mountain View field, and on the north by either a sedimentary change or a cross fault. The regional dip in the area is to the southwest, and although the Arvin field appears to be about 800 ft. lower structurally than the Mountain View field, the gravity of the oil is several degrees higher. In contrast with other recent discoveries in the San Joaquin Basin which were indicated by seismograph or other geophysical surveys, the Arvin field was selected after a geological study of the cores of abandoned wells and results of previous exploratory wells. The Arvin field, which is an accumulation of oil and gas against a fault, appears at this time to be of secondary importance as well as on the basis of the productivity of the Mountain View field.

Northeast Coalinga

The second discovery was made April 24, 1939, when Amerada Petroleum Corp. completed No. 7-17 S.P.L. in the Northeast Coalinga district in Section 17-19-16, flowing 4,230 bbl. of clean 32.4-gravity oil and 14,200,000 cu. ft. of gas daily from the equivalent of the Gatchell or Avenal zone of Eocene age. The discovery well was bottomed at 8,237 ft. and finished with a 7-in. water string landed at 8,022 ft. and 260 ft. of 5-in. liner including 139 ft. of perforated, landed on bottom and cemented through perforations at 8,097 ft. and 7,941 ft. of 2½-in. tubing. The predominating characteristic of this and other wells in the Northeast Coalinga district is the high gas production and while 14,200,000 cu. ft. is not in itself high, the cement job through perforations at 8,097 ft. in the discovery well, blanked off the top 67 ft. of the Gatchell zone which consisted of a gas cap of high concentration. It has since become customary for all operators finishing wells in the Northeast Coalinga field to blank off the top part of the productive zone in order to improve the gas-oil ratio. Top of the productive Gatchell zone was cored in the discovery well at 8,030 ft., top of the glauconitic sand was logged at 7,960 ft., and top of the Kreyenhagen was found at 6,995 ft.

Geological data indicate the probability that the discovery well is located on a broad southeasterly plunging nose seperated from the Southeast Coalinga field by a syncline. The high gas-oil ratio shown by wells in the Northeast Coalinga field in contrast with a relatively low gas-oil ratio in the Southeast Coalinga field, tends to indicate that the two productive areas are seperated by a syncline. The discovery well in the Northeast Coalinga field is about 4 miles north of production in the Southeast Coalinga field, although this intervening distance is being gradually reduced by extension wells.

CALIFORNIA FIELD OPERATIONS BY DISTRICTS FOR YEAR 1939

	Wells completed		Oil and gas wells*		Abandoned		New
Northern—	Number	Bbl. daily	Drilling	Producing	Drillers	Producers	rigs
Arvin	14	23,777	2	6	1	..	15
Belridge—North	14	7,959	3	68	1	..	9
Belridge—South	..	.....	..	86	3	..	1
Canal	16	25,385	2	24	..	..	15
Canfield Ranch	..	.....	..	1	..	..	..
Coalinga	58	137,204	13	821	21	12	76
Coles Levee	13	10,397	6	5	..	..	22
Edison	5	365	1	88	2	4	7
Elk Hills	2	197	..	171	..	2	1
Fruitvale	9	1,140	2	173	7	9	13
Greeley	11	35,776	4	18	1	1	11
Kern River	30	301	5	1,410	15	3	36
Kettleman Middle dome	..	.....	..	3	1	..	..
Kettleman North dome	40	83,824	13	224	1	4	52
Lost Hills	1	69	1	266	3	..	1
McKittrick	4	229	1	197	5	2	6
Midway-Sunset	18	1,673	5	2,543	13	29	27
Mountain View	2	220	1	183	..	9	3
Mount Poso	12	3,081	2	275	9	3	17
Paloma	1	2,246	1	1	..	..	2
Rio Bravo	14	31,250	2	31	1	..	16
Round Mountain	12	2,051	2	204	5	1	18
Strand	6	15,737	1	2	..	..	8
Ten Section	11	29,978	1	30	..	..	11
Tupman	4	5,065	1	2	..	..	7
Wasco	4	19,047	1	6	..	..	4
Wheeler Ridge	1	104	..	33	..	..	..
Total	302	437,075	70	6,871	89	79	378
Coastal—							
Capitan	..	.....	..	46	1	..	1
Elwood	..	.....	..	81	2	..	..
Rincon	6	1,969	1	53	..	2	8
San Miguelito	4	4,574	2	20	2	1	6
Santa Barbara	3	244	..	28	..	19	3
Santa Maria	16	34,066	3	292	9	3	21
Summerland	..	.....	1	18	3	..	1
Ventura Avenue	36	51,652	11	266	..	..	36
Ventura-Newhall	17	8,479	8	551	11	5	30
Watsonville	..	.....	..	7	..	..	..
Total	82	100,984	26	1,362	28	30	106
Southern—							
Brea Olinda	2	235	..	353	1	5	1
Coyote—East	3	989	1	80	1	..	6
Coyote—West	3	1,609	..	57	..	..	3
Dominguez	16	13,701	2	175	1	1	19
El Segundo	..	.....	..	49	..	3	..
Huntington Beach	23	7,495	4	540	..	25	24
Inglewood	..	.....	..	213	..	2	..
Lawndale	..	.....	..	6	1	1	..
Long Beach	9	1,174	3	1,224	2	21	11
Los Angeles-Salt Lake	..	.....	..	111	..	1	..
Montebello	128	86,937	25	264	2	7	144
Newport	..	.....	..	..	1	..	..
Playa Del Rey	1	90	..	174	1	18	2
Potrero	3	776	1	15	..	1	3
Richfield	2	75	1	296	4	4	6
Rosecrane	31	10,690	5	131	4	5	32
Santa Fe Springs	1	394	..	576	..	29	..
Seal Beach	2	309	1	108	1	6	6
Torrance	70	25,667	6	708	6	27	61
Whittier	..	.....	..	146	1	1	1
Wilmington	174	86,429	15	674	..	2	182
Miscellaneous	..	.....	30	....	102	..	89
Total	468	236,570	94	5,900	128	159	590
Total oil fields	852	774,629	190	14,133	245	268	1,074
Gas fields—							
Buena Vista Lake	..	.....	..	3	1	..	..
Buttonwillow	..	.....	..	15	2	3	..
Chowchilla	..	.....	..	....	..	..	..
Delano	10	Gas	1	2	..	..	12
Dudley Ridge	..	.....	..	....	..	..	..
Fairfield Knolls	1	Gas	..	....	..	..	..
Goleta	..	.....	..	....	3	..	2
Marysville Buttes	1	Gas	..	2	..	..	2
McDonald Island	..	.....	..	5	..	..	..
Rio Vista	1	Gas	..	21	..	..	1
Semi-Tropic	..	.....	..	4	..	2	..
Tracy	..	.....	..	3	..	1	..
Total gas fields	13	Gas	1	55	6	6	17
State total	865	774,629	191	14,188	251	274	1,091

*Monthly average.

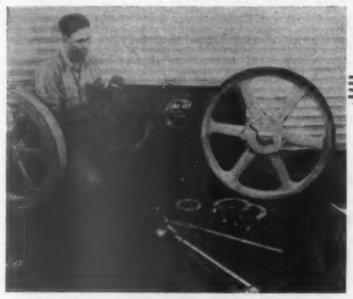
TOTAL FLUID STOCKS OF PETROLEUM HELD IN PACIFIC COAST TERRITORY (Barrels)

	Heavy crude and fuel	Diesel and gas oil	Refinable crude	Natural gasoline	Gasoline	Naphtha distillates	All other stocks	Total all stocks
1937—								
December 31	67,657,050	6,819,579	30,410,671	2,001,204	13,520,678	1,464,577	6,166,488	128,040,247
1938—								
December 31	87,630,334	10,548,251	37,046,014	2,699,321	13,260,958	1,566,349	6,153,809	158,905,036
1939—								
January 1	*87,240,058	*10,539,937	*36,225,312	*2,699,455	*13,259,369	1,566,349	6,153,809	*157,684,289
January 31	87,600,593	10,689,438	36,831,079	2,536,877	14,265,941	1,669,331	6,338,218	159,931,477
February 28	87,124,953	10,632,151	38,353,224	2,290,365	15,040,909	1,566,651	6,109,390	161,117,643
March 31	86,360,372	10,382,404	39,215,749	2,137,837	15,805,417	1,384,449	6,306,740	161,592,968
April 30	86,073,697	10,826,518	39,530,900	2,201,339	15,400,469	1,407,569	6,656,202	162,096,094
May 31	85,534,658	10,244,405	39,830,694	2,423,266	15,044,669	1,339,712	6,933,820	161,351,224
June 30	85,048,085	10,333,510	38,806,186	2,396,219	14,129,499	1,574,503	7,172,119	159,460,121
July 31	85,666,054	10,071,238	38,200,974	2,352,460	13,775,601	1,360,988	7,419,153	158,846,468
August 31	84,045,451	10,116,384	37,876,094	2,246,222	13,331,736	1,450,221	7,517,674	156,583,782
September 30	82,925,305	9,979,845	37,115,203	2,049,211	13,454,290	1,487,704	7,647,251	154,658,809
October 31	82,721,102	9,974,159	35,413,929	1,889,973	14,338,180	1,263,943	7,659,247	153,260,533
November 30	81,092,536	9,880,120	35,011,252	1,652,947	15,011,338	1,283,727	7,944,532	151,876,452

*Revised.

It is too early to say that the Northeast Coalinga field will be comparable with the Southeast Coalinga field from a production standpoint inasmuch as the Southeast Coalinga field is expected to be the greatest field yet discovered in California.

The third discovery made by Tide Water Associated Oil Co. in the Strand district of Kern County, when No. 35-E Kern County Land, in Section 7-30-26, was brought in flowing 1,306 bbl. of 35.1-gravity oil and 978,000 cu. ft. of gas per day from the equivalent of the Stevens zone of upper Miocene age with bottom of the hole at 8,364 ft., but the effective depth at 8,320 ft. This new well was finished with an 8⅝-in. water string cemented at 8,300 ft. and 45 ft. of 6⅝-in. liner, including 19 ft. of perforated and 8,200 ft. of 2½-in. tubing. No. 35-E Kern County Land, the discovery well in the Strand field of Kern County, is located about 1 mile northeast of the Canal field and about 3 miles north



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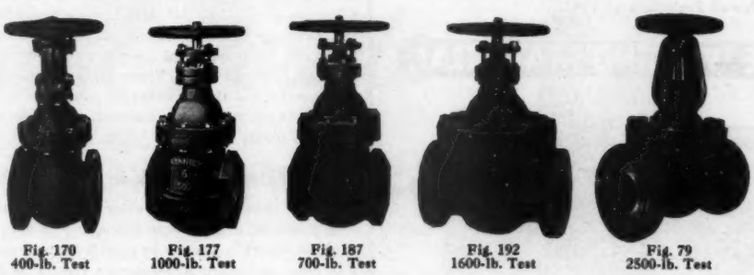

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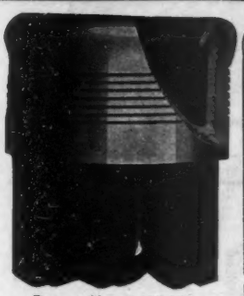

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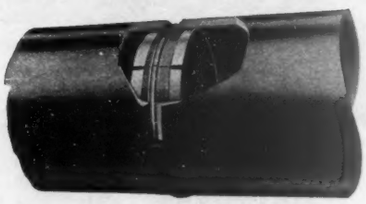

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of the Ten Section field, and is a joint undertaking of the Tide Water Associated Oil Co. and Continental Oil Co., with the former doing the actual drilling. The Greeley field is located about 4 miles north of this new well and the Rio Bravo field is about 10 miles northwest. The highest well structurally in the Strand field, and the well that has shown the largest initial, was No. 75-12-B Kern County Land of Shell Oil Co., in Section 12-30-25, as it came in flowing 3,442 bbl. of very clean 34.3-gravity oil and 3,100,000 cu. ft. of gas per day from 8,321 ft. This well picked up the top of the productive Stevens sand at 8,195 ft. and is the highest well structurally in the field to date. It is west of the discovery well of Tide Water Associated Oil Co.

Paloma Discovery

The fourth discovery chalked up during 1939 was made by Western Gulf Oil Co. in the Paloma district of Kern County in Section 3-32-26, when No. 1 Panhandle was brought in flowing 1,000 bbl. of clean 50.1-gravity oil and 2,500,000 cu. ft. of gas daily from a depth of 10,178 ft. This well, which was completed August 23, 1939, has a 7⅝-in. water string cemented at 9,997 ft., and was brought in barefoot, there being no pipe below the shoe of the water string. This was the only well finished in the Paloma field up to the close of 1939. No. 74-3-A Kern County Land of Western Gulf was in the pay and should be completed in January 1940. The discovery well is located higher than the second well drilled by Western Gulf. No. 1 Panhandle, the initial completion in the Paloma field, topped the Stevens sand at 10,012 ft., but No. 74-3-A Kern County Land found the top of the Stevens zone at 10,134 ft. After No. 1 Panhandle had been on production for several days and proved its ability to show sustained production, Western Gulf Oil Co. reentered the hole and ran in and landed 202 ft. of 5¾-in. Securaloy drillable liner containing perforations at 10,059-10,175 ft. and returned the well to production, flowing through 9,928 ft. of 2½-in. tubing. All operations of Western Gulf in this field are shared by Texas Co. The field was found following a geophysical survey in which reflection seismograph was used. There is no surface indication of structure, but the seismograph survey revealed a normal structure with some question as to the closure on the west end.

Extension Work in Old Fields

Several fields discovered prior to 1939 were extended as a result of drilling operations during the year, and in other districts deeper productive zones were found. The most important development from this standpoint was in the Southeast Coalinga field where the limits of production were substantially enlarged with satisfactory results, have only been defined at two points. These limiting wells were outposts of Holly Oil Co. in the west end of the field and E. A. Parkford's southern outpost, both of which failed to find production. This field is generally recognized as having the best oil sand in the state as well as having a great thickness of producing formation. The average thickness at present is about 400 ft., with some wells greatly exceeding this amount.

Other Extension Work

The west end of the Montebello field passed its drilling peak as far as the upper zones are concerned in August 1939, but the drilling of wells around the edge of the structure continued at the close of the year. At the end of the year all center locations had been developed, and it only remained for operators to drill up outside locations to complete work down to and including the La Merced zone. There is another zone known to exist below the La Merced horizon, and this will result in another temporary upswing in drilling and production activities when operators begin drilling to this future objective.

Late in 1939 R. E. Havenstrite extended the productive limits of the Dominguez field about 1,500 ft. to the west and Union Oil Co. confirmed this discovery by completing No. 73 Callender, an offset flowing about 1,000 bbl. daily from the seventh and eighth Callender zones. Completion of these two new outposts throws open the west end of the Dominguez field for development during 1940, and one may therefore anticipate the starting of numerous outposts just east of Main Street where the acreage and town lots have been leased up for several months.

One of the most important jobs concluded during the year was the extension of the productive limits out on the north flank of the Ventura Avenue field where several excellent flowing wells have been completed in th deep 57-zone in a section of the field, which for several years has been considered doubtful for large commercial production. British American Oil Co. removed any doubt late in May 1939, when No. 7 Hartman was brought in flowing 1,500 bbl. of clean 31.1-gravity oil and 2,300,000 cu. ft. of gas per day from a depth of 8,400 ft., and the Lloyd Corp. confirmed the importance of this find when No. 2 Dabney-Lloyd blew in flowing 2,250 bbl. of clean 31.4-gravity oil and 4,000,000 cu. ft. of gas per day from 9,975 ft. while the crew was engaged in fishing for a string of drill pipe that had froze on bottom and parted at 400 ft. No. 2 Dabney-Lloyd was flowing through the drill pipe and since there was no tubing in the hole, Lloyd Corp. beamed back the flow as much as possible with a casing bean. Completion of these two wells has stimulated drilling operations out on the north flank of the structure, and since the production of all wells completed in the immediate area is relatively clean, additional drilling in this section of the field during 1940 is anticipated.

The most important development in the Wilmington field was the aggressive exploitation of the tideland accumulation in both the inner and outer harbor channels. Tideland exploitation was proceeding at a slower pace at the end of 1939 and will continue during 1940.

CALIFORNIA FIELD OPERATIONS BY MONTHS FOR YEAR 1939

1939—	Wells completed— Number	Wells completed— Bbl. daily	Wells— Drilling	Wells— Producing	Abandoned— Drillers	Abandoned— Producers	New rigs
January	66	50,797	185	13,839	23	24	93
February	61	40,742	178	13,876	8	14	86
March	58	53,034	176	13,909	19	28	73
April	78	71,963	177	13,897	45	22	91
May	60	82,444	168	13,928	19	23	70
June	59	46,736	191	14,044	23	32	93
July	79	71,168	203	14,303	28	29	90
August	81	84,306	209	14,375	21	21	117
September	72	49,726	195	14,417	16	15	92
October	67	56,581	216	14,491	10	27	97
November	85	73,043	206	14,510	16	23	85
December	99	93,489	187	14,668	23	16	104
Total 1939	865	774,629			251	274	1,091
Total 1938	1,000	920,851			265	252	1,154
Total 1937	1,164	617,766			314	273	1,484
Total 1936	802	374,002			320	208	1,094
Total 1935	763	660,980			347	203	1,035

PRODUCTION OF CRUDE BY MONTHS—CALIFORNIA OIL DISTRICTS—(In Barrels of 42 Gal.)

Month—	1939 Total barrels	1939 Daily average	1938 Total barrels	1938 Daily average
January	19,274,079	621,744	22,008,235	709,943
February	17,418,952	622,105	20,607,735	735,991
March	19,283,785	622,058	22,441,293	723,913
April	18,403,853	613,462	21,647,430	721,581
May	19,073,972	615,289	21,346,950	688,611
June	18,221,295	607,376	20,170,317	672,343
Total first half	111,675,936	616,994	128,221,960	708,409
July	18,803,140	606,553	20,493,544	661,082
August	18,934,353	610,786	20,769,860	669,995
September	18,462,923	615,431	19,921,957	664,065
October	19,098,804	616,091	20,423,178	658,812
November	18,382,277	612,742	19,883,988	662,800
December	18,970,932	611,962	20,034,759	646,283
Total last half	112,652,429	612,241	121,527,286	660,474
Total year	224,328,365	614,598	249,749,246	684,244

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Annual Review

THIRTY-FIVE NEW OIL AND GAS FIELDS OPENED IN SOUTHWEST TEXAS

By F. L. SINGLETON

OPERATORS in the Southwest Texas district marked up a successful year of operations during 1939. There were 35 new oil and gas fields opened, and important extensions and new sand discoveries were opened in many of the proven fields. Probably the outstanding development was an expansion of the Frio-Vicksburg play through Jim Wells, Brooks, Hidalgo and Starr counties, and the extension of the Tertiary Wilcox trend play from the upper Gulf Coast district through the Pettus trend as far south as Webb County.

The number of completed wells were slightly lower than the previous year with a total of 2,424 wells drilled. Of this number 745 were abandoned wells and 87 were gas wells.

The opening of Frio-Vicksburg production at the South Alice field, Jim Wells County, in March 1938 was followed by an extensive wildcatting play which accounted for 8 fields being opened in the county. Several of the new pools are still undeveloped and their potentiality cannot be accurately measured, although development at Ben Bolt and Reynolds definitely established these fields as important reserves, and both structures received additional production in new sand discoveries.

The Corpus Christi district, which includes the above area, continued to lead in the number of new discoveries with a total of 24 oil or gas pools being found. An expansion of the producing area in the East White Point and McCampbell fields in Aransas and San Patricio counties continued to make these fields the most active in the district, and production is still undefined in many directions. Production at East White Point was extended into the old White Point gas field and into Corpus Christi Bay, while at McCampbell production was extended into the Aransas Pass townsite, resulting in an active town-lot drilling campaign.

Mellon-Creek

The Mellon Creek field, 2½ miles northwest of the Tomoconnor field, Refugio County, looms as one of the most important reserves opened in the district. It was opened by Copano Oil Co., which later sold its holdings to Quintana Petroleum Co., which carried on an orderly drilling campaign. Production is from a uniform-sand section in the Frio formation, corresponding with that of the prolific Tomoconnor field. In the same county, new reserves were added to the La Rosa field by new sand discoveries and important extensions.

Wildcatting throughout Victoria County was increased by shallow discoveries in the Catahoula formation. These fields include the Cologne and Victoria fields, both of which are receiving an active drilling campaign as the result of recent extensions and new sand discoveries.

In Nueces County Stanolind Oil & Gas Co. opened the first oil production in the Riverside gas field, by completion of No. 2 Wilson, 4,000 ft., west of the discovery well. Production was obtained by perforating casing at 4,995-98 ft., and the well flowed 50 bbl. of 33-gravity oil daily through a ⅛-in. choke. Production is limited to a small area by several dry holes. Several new sands were opened in the Richard King field by Southern Minerals Corp. Other fields in this county receiving new sand discoveries included North Luby, Clara Driscoll and South Clara Driscoll fields.

In San Patricio County Seaboard Oil Corp. opened two pools, both of which are undeveloped. Southwest of Odem, No. 1 M. C. Smith, perforated casing at 6,995-7,000 ft., and the well flowed 31 bbl. of 58.7-gravity distillate and 5,500,000 cu. ft. of gas daily through a ¼-in. choke. Southeast of Mathis No. 1 Persons was completed through perforated casing at 5,260-68 ft., and the well flowed 54 bbl. daily through a ⅛-in. choke. This county had an active wildcatting play but several interesting prospects were marked off by dry holes.

The Cockfield trend, extending through the east half of Duval County, received four new pools. These

SOUTHWEST TEXAS

San Antonio District

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
BRANYON:													
Daily average	1,850	1,740	1,843	1,829	1,956	1,739	1,559	1,379	1,524	1,353	1,156	1,685	
Month	57,350	48,720	57,133	54,870	60,636	52,170	48,329	42,749	45,720	41,943	34,680	52,235	596,535
BUCHANAN:													
Daily average	143	157	134	126	165	142	125	83	144	117	111	150	
Month	4,433	4,396	4,154	3,780	5,115	4,260	3,875	2,573	4,320	3,627	3,330	4,650	48,513
CHAPMAN:													
Daily average	195	218	247	144	190	170	153	248	187	189	152	162	
Month	6,045	6,104	7,657	4,320	5,890	5,100	4,743	7,688	5,610	5,859	4,560	5,022	68,598
DALE:													
Daily average	206	203	234	298	314	275	292	184	329	279	252	287	
Month	6,386	5,684	7,254	8,940	9,734	8,250	9,052	5,704	9,870	8,649	7,560	8,897	95,980
DARST CREEK:													
Daily average	7,437	7,162	7,581	8,322	8,213	7,483	7,928	4,394	7,563	6,952	5,940	6,823	
Month	230,547	200,536	235,011	249,660	254,603	224,490	245,768	136,214	226,890	215,512	178,200	211,513	2,608,944
HILBIG:													
Daily average	307	284	297	333	326	282	297	159	282	258	212	240	
Month	9,517	7,952	9,207	9,990	10,106	8,460	9,207	4,929	8,460	7,998	6,360	7,440	99,626
LULING:													
Daily average	6,899	6,819	6,755	7,195	7,200	6,503	6,818	6,725	6,080	6,025	5,042	7,477	
Month	213,869	190,932	209,405	215,850	223,200	195,090	221,358	208,475	182,400	186,775	151,260	231,787	2,430,401
LYTTON SPRINGS:													
Daily average	294	292	305	292	290	265	285	156	315	286	204	291	
Month	9,114	8,176	9,455	8,760	8,990	7,950	8,835	4,836	9,450	8,866	6,120	9,021	99,573
MINERVA:													
Daily average	219	195	205	190	157	196	167	191	200	200	195	210	
Month	6,789	5,460	6,355	5,700	4,867	5,880	5,177	5,921	6,000	6,200	5,850	6,510	70,709
PEARSALL:													
Daily average	503	510	518	577	541	492	490	267	479	440	361	414	
Month	15,593	14,280	16,058	17,310	16,771	14,760	15,469	8,277	14,370	13,640	10,830	12,834	170,192
SALT FLAT:													
Daily average	4,095	4,113	4,618	4,910	4,974	4,439	4,740	3,989	4,361	4,036	3,541	3,975	
Month	126,945	115,164	143,158	147,300	154,194	133,170	146,940	123,659	130,830	125,116	106,230	123,225	1,575,931
SOMERSET:													
Daily average	545	582	556	580	634	649	570	341	599	620	604	591	
Month	16,895	16,296	17,236	17,400	19,654	19,470	17,670	10,571	17,970	19,220	18,120	18,321	208,823
VON ORMY:													
Daily average	113	127	137	126	156	136	119	80	125	125	95	120	
Month	3,503	3,556	4,247	3,780	4,836	4,080	3,689	2,480	3,750	3,785	2,850	3,720	44,276
DOBROWSKI:													
Daily average	111	116	113	111	115	114	114	114	111	110	111	111	
Month	3,441	3,248	3,503	3,330	3,565	3,420	3,534	3,534	3,330	3,410	3,330	3,441	41,086
MISCELLANEOUS:													
Daily average	969	929	953	909	973	862	748	609	876	810	721	773	843
Month	30,039	26,012	29,543	27,270	30,163	25,860	23,180	18,879	26,280	25,110	21,630	23,963	307,929
Daily average	23,886	23,447	24,496	25,942	26,204	23,747	24,736	18,919	23,175	21,797	18,697	23,309	23,198
Total 1939	740,466	656,516	759,376	778,260	812,324	712,410	766,826	586,489	695,250	675,710	560,910	722,579	8,467,116
Total 1938	767,777	657,664	764,770	751,650	732,964	663,840	780,828	798,157	703,002	735,405	733,230	775,093	8,864,380
Total 1937	771,946	634,000	714,395	695,940	846,300	796,170	774,566	792,919	754,710	774,814	738,000	821,130	9,055,790
Total 1936	713,434	657,227	721,091	705,240	746,263	726,030	746,666	753,503	686,550	708,969	694,170	691,624	8,550,767

Miscellaneous pools and their total production in the 12-month period were: Alta Vista, 4,831 bbl.; Bateman, 32,913 bbl.; Beyersville, 30,766 bbl.; Burdette Wells, 13,341 bbl.; Carroll, 7,972 bbl.; Cedar Creek, 22,503 bbl.; Checon Lake, 9,136 bbl.; Dunlap, 22,660 bbl.; Dunlay, 400 bbl.; Gas Ridge, 2,433 bbl.; Ina, 2,953 bbl.; Kimbro, 1,761 bbl.; La Coste, 1,029 bbl.; Larremore, 17,301 bbl.; Lone Oak, 791 bbl.; Manda, 1,304 bbl.; Manford, 7,351 bbl.; Medina, 2,568 bbl.; Nash Creek, 5,474 bbl.; Riddle, 30,970 bbl.; Staples, 122 bbl.; Tanglewood, 7,205 bbl.; Thrall, 12,105 bbl.; Walnut Creek, 6,964 bbl.; Yost, 13,866 bbl.; Zoborowski, 26,063 bbl.; Yturri, 20,259 bbl.; Red Rock, 2,888 bbl.; total, 307,929 bbl.

include: Chiltipin, Muralla, Sejita and Southland. Development has been slow and their potentiality at this time cannot be ascertained. The trend continues to have an active drilling campaign, and additional reserves are expected to be opened during 1940.

Laredo District

The most interesting development in the Laredo district was the drilling of a Tertiary Wilcox test in the old Bruni field, Webb County, by Tide Water Associated Oil Co. This well, No. 7 Bruni, attempted to blow out from the Wilcox at a depth below 8,900 ft., and the hole was plugged back to complete in a shallower sand due to mechanical trouble as the result of excessive gas pressure. This is the deepest well drilled along the old shoreline trend and the showing in the deep sand definitely opened a deep-drilling campaign for this area. The well is approximately 100 miles down dip from the West Tuleta field in Bee County, where another deep test drilled by Mills Bennett Production Co. and Anderson-Prichard Oil Corp., logged interesting showings in the Wilcox topped at 7,531 ft. Mechanical trouble, caused by excessive gas pressure, resulted in a plug-back job, and the well was finally completed in the Yegua sand at approximately 4,200 ft. The showing of the two wells created widespread interest in this trend, and at the close of the year, approximately 7 deep tests were proposed.

There were six pools opened in the Laredo district, and wildcatting during the year was widespread. New fields opened included the Adami and Volpe fields, Webb County, Guiterrez, Jim Hogg County, North Ricaby and Seabury in Starr County, and the Tarancahuas field in Duval County. The Adami field, in the northeast corner of Webb County, is having an active drilling campaign, and at the end of the year, the field was one of the most active in the district. The discovery was made by Johnson & Robinson's No. 1 Mabel Adami, completed on the pump in 9 ft. of sand bottomed at 999 ft., for an initial production of 12 bbl. of oil in 4 hours. The field is being developed by independent operators and 15 wells had been completed at the close of the year. Approximately 10 rigs are operating in the field. All wells are completed on the pump, with an average production from 40 to 50 bbl.

Magnolia Petroleum Co. opened an important extension or new producing area southeast of the Hoffman field, Duval County, with completion of No. 1 Weil, completed as a gas well in sand at 2,654-61 ft. The second well, No. 2 Weil, was completed in sand at 2,806-36 ft., for an initial production of 40 bbl. daily. Location is in Survey 113.

Starr County

In eastern Starr County, Bishop & Moss opened the North Ricaby field with the completion of No. 1 S. B. Ricaby, completed in sand at 1,316-19 ft., for an initial production of 75 bbl. daily on the pump. Northeast of Rio Grande City, Clopton & Mitchell's No. 1 Seabury, opened a small producing area when it flowed 8 bbl. daily from sand at 1,328-33 ft.

The La Reforma field, Starr County, got a major extension as Magnolia Petroleum Co. completed No. 2 Guerra as a distillate producer in sand at 5,810-20 ft. The well is approximately 2½ miles from the discovery well. This is considered one of the largest structures

SOUTHWEST TEXAS DISCOVERIES IN 1939

Pool, county, company, farm name—	Surey	Date of completion	Producing formation	Producing depth	Initial production	No. prod. wells Jan. 1
Adami, Webb, Johnson & Robinson's No. 1 Adami	A.B.&M. 345	6-2	Cole	990-99	50 bbl. per day, pumping	15
Atha, Caldwell, Dr. J. F. Atha's No. 1 Carter	Gideon Pace	10-27	Lime	1,781-93	4 bbl., pumping	1
Ben Bolt, Jim Wells, Bridwell Oil Co.'s No. 1 Smith	La Trinidad	5-26	Frio-Vicksburg	5,242-46	145 bbl. per day, ¼-in. choke	21
Blucher, Jim Wells, Shell Oil Co., Inc.'s No. 1 Von Blucher	Lucinda Vest	2-3	Frio-Vicksburg	7,555-60	28 bbl. per day, ⅛-in. choke	1
Camada, Jim Wells, Parr Drilling Co.'s No. 1 Hoffman	San Leandro grant	5-26	Frio-Vicksburg	5,625-40	37 bbl., ⅛-in. choke	1
Chiltipin, Duval, Wm. Nichols' No. 1 Graham	Cuadrilla Irrig. Co.	9-29	Pettus	4,787-92	125 bbl., ⅛-in. choke	3
Cologne, Victoria, Houston Oil Co.'s No. 1 Hornstein	Pedro Gallardo	9-29	Catahoula	2,860-70	Gas well	3
East Mathis, San Patricio, Seaboard Oil Co.'s No. 1 Person	A.B.&M. 6	6-23	Frio	5,260-68	54 bbl., ⅛-in. choke	1
Elm Creek, Guadalupe, E. A. Weyel's No. 1 Lentz	V. Micheli 152	12-22	Navarro	704-28	15 bbl., pumping	1
Fannin, Goliad, Shell Oil Co., Inc.'s No. 1 Swickheimer	Cuadrilla Irrig. Co.	9-29	Catahoula	2,804-64	Gas well	2
Glenn, Guadalupe, Frank Glenn's No. 1 Appling	H. Cottle	2-17	Doble lime	1,960-2,182	18 bbl., pumping	1
Gutierrez, Jim Hogg, Mayfair Oil Corp.'s No. 1 Gutierrez	O. Gutierrez 164	12-22	Loma Novia	3,222-23	17 bbl., pumping	1
La Gloria, Jim Wells, Magnolia Petroleum Co.'s No. 1 Sam Maun	Ignacio de la Pena	3-24	Frio-Vicksburg	6,560-70	165 bbl., ⅛-in. choke	2
Heard, Bee, Coronado Corp.'s No. 1 Heard	M. M. Tool	12-10	Yegua	4,766-76	Gas well	1
Magnolia City, Bee, F. A. Gillespie's No. 1 M. T. Shear	A.B.&M. 209	5-5	Frio-Vicksburg	5,439-46	108 bbl., ⅛-in. choke	2
Melon Creek, Refugio, Copano Oil Co.'s No. 1-C Oconnor	Timothy Hoyt	2-17	Frio	5,855-75	107 bbl., ⅛-in. choke	10
Minnie Bock, Nueces, Texas Conservative Co.'s No. 1 Bock	Geo. H. Paul Subd.	5-26	Catahoula	3,806-14	121 bbl., 5/32-in. choke	23
Mountain View, Live Oak, Salvieja Oil Co.'s No. 1 Riser	A. Moore 382	9-15	.....	2,476-81½	Gas well	1
Muralla, Duval, J. B. Blanchard's No. 1 Parr	T. C. Rogers 298	5-19	Pettus	4,710-15	22 bbl., 3/32-in. choke	2
North Luby, Nueces, Seaboard Oil Co.'s No. 1 La Prelle	Canutillo Colony Ditch Co.	6-2	Catahoula	4,347-54	168 bbl., ⅛-in. choke	2
North Ricaby, Starr, Bishop & Moss' No. 1 Ricaby	Martinez Porcion 83	5-21	Mirando	1,294-1,305	75 bbl. per day, pumping	1
Odem, San Patricio, Seaboard Oil Co.'s No. 1 Smith	Juan Hart & Son	10-21	Frio	6,995-7,000	131 bbl. per day, ¼-in. choke	1
Powderhorn, Calhoun, Continental Oil Co.'s No. 1 Powderhorn	Juan Cano	11-24	Heterostegina	4,627-35	Gas and distillate	1
Red Rock, Bastrop, Joe Hughes' No. 1 Lentz	Freeman Wilkinson	5-26	Taylor marl	2,388-2,428	65 bbl. per day, pumping	2
Reynolds, Jim Wells, Texas Gulf Prod. Co.'s No. 1 Miller	Casa Blanca	6-30	Frio-Vicksburg	5,143-49	55 bbl., 7/64-in. choke	27
Robstown, Nueces, Shield Oil Co.'s No. 1 Magee	Geo. H. Paul subd.	8-25	Frio	5,560-62	40 bbl. per day, 12/64-in. choke	1
Seabury, Starr, Clopton and others' No. 1 Seabury	J. Falcon Por. 80	12-22	.....	1,328-33	8 bbl., ¼-in. choke	1
Sejita, Duval, Standard Oil Co. of Texas' No. 1 Casey	San Pedro de Charco Redondo grant		Cockfield	5,334-45	Gas distillate	1
Southland, Duval, Henderson Coquat's No. 1 Southland Life Ins. Co.	Santa Flores	4-14	Cockfield	5,275-98	145 bbl. per day, 5/32-in. choke	3
South Alfred, Jim Wells, Ike Howeth's No. 1 Adams	Wm. Adams	4-21	Frio-Vicksburg	4,661-74	135 bbl. per day, ⅛-in. choke	4
Tarancahuas, Duval, Cox-Hamon's No. 1 Gorman-Hoffman	B.S.&F. 119	12-22	Frio	2,014-35	100 bbl., jetting	1
Victoria, Victoria, J. Mayo and others' No. 1 Voight	.....	9-8	Catahoula	2,552-55	Gas and distillate	1
Volpe, Webb, Magnolia Petroleum Co.'s No. 5 Volpe-Benavides	B.S.&F.	6-23	Mirando	2,458-66	50 bbl. 12 hours, pumping	10
Wade City, Jim Wells, W. R. Quinn's No. 1 Pundt and others	T. C. Wright 2	8-4	Frio-Vicksburg	4,809-14	Gas and distillate	2
White Creek, Live Oak, R. P. Holland, No. 1 Bonham	B.S.&F. 59	2-10	Government Wells	1,390	27 bbl. per day, pumping	7

SOUTHWEST TEXAS
Laredo District
Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
ALTA MESA:													
Daily average	495	479	490	397	450	450	384	207	326	384	266	342	
Month	15,345	13,412	15,190	11,910	13,950	13,500	11,904	6,417	9,780	11,904	7,980	10,602	141,894
AVIATOR:													
Daily average	320	321	438	350	311	260	314	198	284	335	186	222	
Month	9,920	8,988	13,578	10,500	9,641	7,800	9,734	6,138	8,520	10,385	5,580	6,882	107,666
BENAVIDES:													
Daily average	10,728	13,104	10,253	10,014	7,891	7,829	6,764	3,878	6,633	6,574	5,406	5,631	
Month	332,568	366,912	317,843	300,420	244,621	234,870	209,684	120,218	198,990	203,794	162,180	174,561	2,866,661
CALLIHAM:													
Daily average	163	168	152	148	179	147	232	179	158	187	103	158	
Month	5,053	4,704	4,712	4,440	5,549	4,410	7,192	5,549	4,740	5,797	3,090	4,898	60,134
CASA BLANCA:													
Daily average	592	581	690	459	449	409	409	227	414	355	322	365	
Month	15,872	16,268	21,390	13,770	13,919	12,270	12,679	7,037	12,420	11,005	9,982	11,315	157,927
CEDRO HILL:													
Daily average	.....	.....	63	113	108	138	186	120	250	213	201	254	
Month	.....	.....	1,953	3,390	3,348	4,140	5,766	3,720	7,500	6,603	6,030	7,874	50,324
CHARAMOUSCA:													
Daily average	226	257	314	565	427	533	221	454	353	490	266	306	
Month	7,006	7,196	9,734	16,950	13,237	15,990	6,851	14,074	10,590	15,190	7,980	9,486	134,284
COLMENA:													
Daily average	282	248	262	253	213	229	239	158	200	185	210	223	
Month	8,742	6,944	8,122	7,590	6,603	6,870	7,409	4,898	6,000	5,735	6,300	6,913	82,126
COLORADO:													
Daily average	292	237	199	208	146	227	370	259	497	445	504	621	
Month	9,052	6,636	6,169	6,240	4,526	6,810	11,470	8,029	14,910	13,795	15,140	19,251	122,028
COMITAS:													
Daily average	636	702	844	771	789	723	729	365	728	735	554	680	
Month	19,716	19,656	26,164	23,130	24,459	21,690	22,599	11,315	21,840	22,785	16,620	21,080	251,054
CUEVITAS:													
Daily average	584	584	584	529	448	408	329	228	410	343	311	350	
Month	18,104	16,352	18,104	15,870	13,888	12,240	10,199	7,068	12,300	10,633	9,330	10,850	154,938
DRISCOLL:													
Daily average	2,252	2,404	2,251	2,238	1,126	1,115	2,288	1,942	1,138	1,308	1,441	1,780	
Month	69,812	67,312	69,781	67,140	34,906	33,450	70,928	60,202	34,140	40,548	43,230	55,180	646,629
EAGLE HILL:													
Daily average	714	666	624	822	779	688	717	385	672	680	522	589	
Month	22,134	18,648	19,344	24,660	24,149	20,640	22,227	11,935	20,160	21,080	15,660	18,259	238,896
ESCOBAS-JENNINGS:													
Daily average	1,808	2,027	2,162	3,342	2,040	1,855	2,095	1,142	2,101	2,024	1,409	1,795	
Month	56,048	65,756	67,022	100,260	63,240	55,650	64,945	35,402	63,030	62,744	42,270	55,645	723,012
EZZEL:													
Daily average	3,263	3,439	3,756	3,400	3,694	2,947	2,781	1,385	2,287	2,378	1,920	2,126	
Month	101,153	96,292	116,436	102,000	114,514	88,410	86,211	42,935	68,610	73,718	57,600	65,906	1,013,785

(Continued on Next Page)

found along this district, and the two wells are the only tests drilled on the structure.

The Rincon field, Starr County, on the extreme south end of the Frio-Vicksburg trend, originally discovered as a distillate field, got its first oil production with completion of Transwestern Co. and others' No. 1 Cameron, 2 miles north of the discovery well. Casing was perforated at 4,160-70 ft., and the well flowed 144 bbl. daily through a ⅛-in. choke. The field is receiving a wide-spread drilling campaign by W. R. Davis, who purchased the holdings of Transwestern Oil & Co. and the D. D. Oil Co.

Two other fields located along this trend in Jim Hogg and Starr counties were expanded. In the Sun field, Starr County, Sun Oil Co. extended the producing limits approximately 1½ miles west with the completion of No. 1 George Spear in sand at 4,966-72 ft. In the Kelsey field, Jim Hogg and Brooks counties, Humble Oil & Refining Co. opened production from a new sand on the east side of the field and extended production to the north on the Brooks County side of the field.

South of Hebronville, Jim Hogg County, Mayfair Oil Corp. opened the Guiterrez field with completion of No. 1 Isabel Guiterrez. The well was drilled on a farmout lease from Texas Co. and was completed in the Loma Novia sand at 3,217-23 ft. Leases surrounding the well were farmed out to W. L. Goldston, who is drilling an offset to the discovery.

In the same county, in the Colorado field, Humble Oil & Refining Co. extended production approximately 1 mile north with the completion of No. 1 King ranch, completed in sand at 3,036-61 ft. for an initial production of 436 bbl. daily. This is the largest producer in the field and the completion resulted in a revival of drilling activity.

(Continued on Next Page)

SOUTHWEST TEXAS (Laredo District Continued)

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
FITZSIMMONS:													
Daily average	2,235	2,645	2,994	2,698	2,191	2,124	2,381	1,295	2,378	2,279	1,946	2,107	
Month	69,285	74,060	92,814	80,940	67,921	63,720	73,811	40,145	71,340	70,649	58,380	65,317	828,382
GOVERNMENT WELLS:													
Daily average	10,559	10,475	10,450	11,372	10,208	9,280	9,988	5,346	9,660	8,823	6,478	6,743	
Month	327,329	293,300	323,950	341,160	316,448	278,400	309,625	165,726	289,800	273,513	194,340	209,033	3,322,624
HOFFMAN:													
Daily average	4,566	4,923	5,194	4,528	4,384	4,210	4,427	2,365	4,343	4,018	3,399	3,907	
Month	141,546	137,844	161,014	135,840	135,904	126,300	137,237	73,315	130,290	124,558	101,970	121,117	1,526,935
JACOBS:													
Daily average	484	426	387	327	446	402	460	373	373	521	301	364	
Month	15,004	11,928	11,997	9,810	13,826	12,060	14,260	11,563	11,190	16,151	9,030	11,284	148,103
KELSEY:													
Daily average	32	314	603	374	623	762	1,018	590	1,370	1,346	1,362	1,710	
Month	992	8,792	18,693	11,220	19,313	22,860	31,558	18,290	41,100	41,726	40,860	53,010	308,414
KILLAM:													
Daily average	617	696	642	594	535	487	572	365	577	570	343	433	
Month	19,127	19,488	19,902	17,820	16,585	14,610	17,732	11,315	17,310	17,670	11,290	13,423	196,272
KOHLER:													
Daily average	318	347	595	458	31	83	420	316	603	553	420	422	
Month	9,858	9,716	18,445	13,740	961	2,490	13,020	9,796	18,090	17,143	12,600	13,082	138,941
LABBE:													
Daily average	210	216	230	267	235	214	182	70	177	144	149	168	
Month	6,510	6,048	7,130	8,010	7,285	6,420	5,642	2,170	5,310	4,464	4,470	5,208	68,667
LOMA ALTA:													
Daily average	75	75	73	73	66	59	59	32	59	51	39	48	
Month	2,325	2,100	2,263	2,190	2,046	1,770	1,829	992	1,770	1,581	1,170	1,488	21,524
LOMA NOVIA:													
Daily average	10,950	10,999	10,791	11,378	11,402	10,368	9,808	5,203	9,231	8,138	6,775	7,850	
Month	339,450	316,972	334,521	341,340	353,462	311,040	304,048	161,293	276,930	252,278	203,250	243,350	3,437,934
LONGHORN:													
Daily average	241	327	654	949	906	1,188	1,643	977	1,970	1,915	1,528	1,732	
Month	7,471	9,156	20,274	28,470	28,086	35,640	50,933	30,287	61,070	59,365	45,840	58,692	435,284
LOPEZ:													
Daily average	5,135	5,227	5,170	5,788	5,654	4,914	4,901	2,795	4,826	4,393	3,586	4,101	
Month	159,185	146,356	160,270	173,640	175,274	147,420	151,931	86,645	144,780	136,183	107,580	127,131	1,716,395
LOS OLMOS:													
Daily average	93	87	92	95	107	90	85	51	64	65	55	70	
Month	2,883	2,436	2,852	2,850	3,317	2,700	2,635	1,581	1,920	2,015	1,650	2,170	29,009
LUNDELL:													
Daily average	486	642	667	665	760	646	633	346	597	555	518	610	
Month	15,066	17,976	20,677	19,950	23,560	19,380	19,623	10,726	17,910	17,205	15,540	18,910	216,523
MIRANDO VALLEY:													
Daily average	291	290	527	589	516	533	842	507	772	721	742	971	
Month	9,021	8,120	16,337	17,670	15,996	15,990	26,102	15,717	23,160	22,351	22,260	30,101	222,825
MIRANDO CITY:													
Daily average	353	344	320	376	377	360	335	209	302	202	109	245	
Month	10,943	9,632	9,920	11,280	11,687	10,800	10,385	6,479	9,060	6,293	3,270	7,595	107,344
MOCA:													
Daily average	322	322	320	352	384	376	297	209	297	209	209	235	
Month	9,982	9,016	9,920	10,560	11,904	11,280	9,207	6,479	8,910	6,479	6,270	7,285	107,292
MUNSON:													
Daily average	48	220	412	326	235	216	200	96	129	210	109	168	
Month	1,488	6,160	12,772	9,780	7,285	6,480	6,200	2,976	3,870	6,510	3,270	5,208	71,999
NORTH KILLAM:													
Daily average	130	143	130	74	50	45	40	43	60	86	122	138	
Month	4,030	4,004	4,030	2,220	1,550	1,350	1,240	1,333	1,800	2,666	3,660	4,278	32,161
O'HERN:													
Daily average	5,491	5,778	5,503	5,290	5,185	4,715	5,777	3,396	5,178	5,293	3,879	4,452	
Month	170,221	161,784	170,593	158,700	160,735	141,450	178,887	105,276	155,340	164,083	116,370	138,012	1,821,451
OILTON:													
Daily average	1,474	1,469	1,265	1,204	1,258	1,167	941	539	860	802	1,956	830	
Month	45,694	41,132	39,215	36,120	38,998	35,010	29,171	16,709	25,800	24,862	58,680	25,730	417,121
PIEDRA DE LUMBRE:													
Daily average	945	993	1,025	1,219	1,282	1,228	1,368	747	1,390	1,968	1,146	1,337	
Month	29,295	27,804	31,775	36,570	39,742	36,840	42,408	23,157	41,700	61,008	34,380	41,447	446,126
RANCHO SOLO:													
Daily average	243	326	348	514	390	355	340	335	320	350	453	524	
Month	7,533	9,128	10,788	15,420	12,090	10,650	10,540	10,385	9,600	10,850	13,590	16,244	136,818
RANDADO:													
Daily average	250	250	250	284	266	244	258	204	229	265	168	229	
Month	7,750	7,000	7,750	8,520	8,246	7,320	7,998	6,324	6,870	8,215	5,040	7,099	88,132
RICABY:													
Daily average	404	476	390	313	359	365	286	287	437	365	384	389	
Month	12,524	13,328	12,090	9,390	11,129	10,950	8,866	8,897	13,110	11,315	11,520	12,059	135,178
RIO GRANDE:													
Daily average	150	110	84	82	97	91	57	42	70	100	49	70	
Month	4,650	3,080	2,604	2,460	3,007	2,730	1,767	1,302	2,100	3,100	1,470	2,170	30,440
SAMFORDYCE:													
Daily average	2,294	2,297	2,446	2,212	2,250	2,265	2,601	1,622	2,382	2,371	1,925	2,288	
Month	71,114	64,316	75,826	66,360	69,750	67,950	80,631	50,282	71,460	73,501	57,750	70,928	819,868
SARNOSA:													
Daily average	571	575	532	594	605	550	509	295	478	427	338	394	
Month	17,701	16,100	16,492	17,820	18,755	16,500	15,779	9,145	14,340	13,237	10,140	12,214	178,223
SEVEN SISTERS:													
Daily average	6,504	6,374	6,534	7,290	7,693	6,995	6,455	3,199	6,547	5,521	5,074	5,756	
Month	201,624	178,472	202,554	218,700	238,483	209,850	200,105	99,169	196,410	171,151	152,220	178,436	2,247,174
SUN:													
Daily average	219	356	444	472	356	370	405	214	452	458	394	458	
Month	6,789	9,968	13,764	14,160	11,036	11,100	12,555	6,634	13,560	14,198	11,820	14,198	139,782
SWEDEN:													
Daily average	241	400	654	946	144	131	180	103	131	140	59	66	
Month	7,471	11,200	20,274	28,380	4,464	3,930	5,580	3,193	3,930	4,340	1,770	2,046	96,578
TESORO:													
Daily average	422	285	285	405	341	310	279	143	242	180	154	175	
Month	13,082	7,980	8,835	12,150	10,571	9,300	8,649	4,433	7,260	5,580	4,620	5,425	97,885
Daily average	78,864	84,208	83,327	85,993	78,731	73,461	76,374	43,828	73,601	70,377	58,438	65,328	72,615
Total 1939	2,444,784	2,357,836	2,583,137	2,579,790	2,440,661	2,203,830	2,367,577	1,358,668	2,208,020	2,181,697	1,753,132	2,025,177	26,504,309
Total 1938	2,373,019	2,131,696	2,373,459	2,630,340	2,491,594	2,189,820	2,461,271	2,718,328	2,321,160	2,241,548	2,281,680	2,535,192	28,749,107
Total 1937	2,110,542	2,338,672	2,635,930	2,285,520	2,426,029	2,318,700	2,356,087	2,873,948	2,778,990	2,659,427	2,486,340	2,625,625	29,895,810
Total 1936	1,367,658	1,357,548	1,610,884	1,689,750	1,853,397	1,802,520	1,784,778	1,859,907	1,890,400	1,982,109	1,896,750	2,037,861	21,133,562

Miscellaneous pools and their total production in 12-month period are: Albercas, 16,925 bbl.; Alta Verde, 7,076 bbl.; Barbacoas, 1,908 bbl.; Callihan, 60,134 bbl.; Carolina-Tex, 3,836 bbl.; Charco-Redondo, 1,464 bbl.; Henne-Winch-Farris, 1,978 bbl.; La Reforma, 4,426 bbl.; Las Animas, 17,771 bbl.; Loma Vista, 2,995 bbl.; Peters, 22,161 bbl.; Piedra Pintas, 3,225 bbl.; Rincon, 12,906 bbl.; Roma, 1,021 bbl.; Southland, 16,622 bbl.; Thomas-Lockhart, 155 bbl.; Murella, 8,288 bbl.; Adami, 12,852 bbl.; Volpe, 21,317 bbl.; Chiltipin, 4,621 bbl.; total 221,681 bbl.

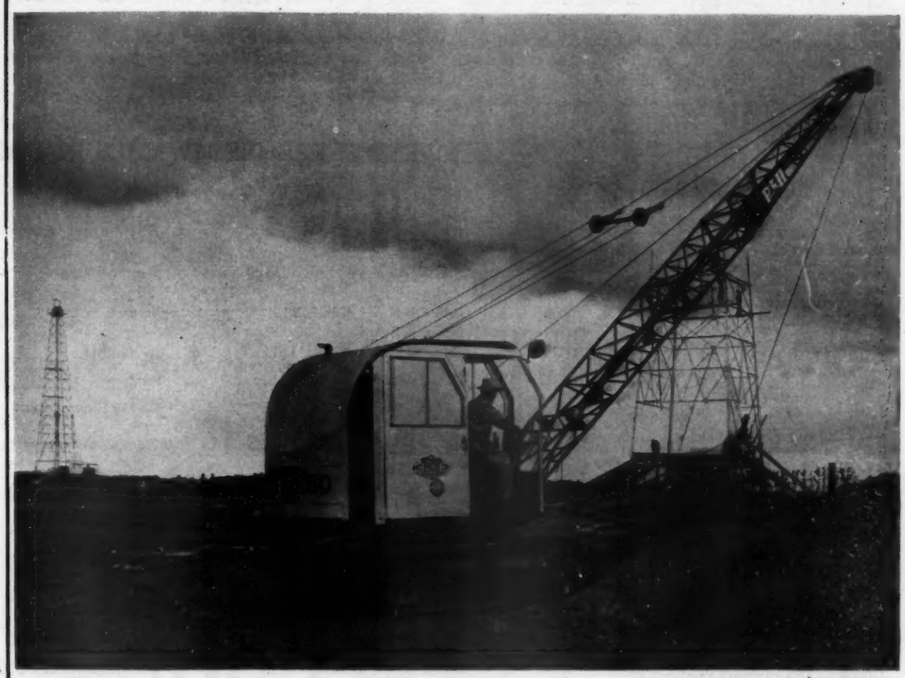
SOUTHWEST TEXAS

Summary of Wells Completed in 1939

Field—	Comp.	Prod.	Abd.	Gas
Atha	1	4	0	0
Agua Dulce	36	220	4	23
Adami	15	622	1	0
Alice	76	5,484	12	3
Alta Mesa	2	0	2	0
Angelita	2	24	0	0
Alta Vista	2	10	1	0
Benavides	26	2,084	4	1
Batesville	3	0	3	0
Branyon	8	587	4	0
Blucher	2	28	1	0
Blasurbie	2	0	2	0
Bonnieview	2	0	1	1
Bird Island	2	68	1	0
Byersville	9	16	6	0
Ben Bolt	26	4,311	1	1
Bandera	1	0	1	0
Carolina-Texas	1	0	0	1
Church	2	0	2	0
Charco Blanco	1	0	1	0
Casa Blanca	13	440	5	0
Clara Driscoll	36	2,942	7	3
Coffey	6	78	3	0
Comitas	19	812	7	0
Calliham	9	17	5	0
Carroll	1	10	0	0
Cedro Hill	23	1,156	1	1
Chacon Lake	16	20	6	0
Colorado	19	2,002	2	0
Colmena	1	0	1	0
Camada	3	37	1	1
Campana	4	0	4	0
Cedar Creek	1	0	1	0
Chiltipin	3	35	0	2
Cologne	3	129	0	2
Cuevitas	1	38	0	0
Dale	13	489	6	0
Darst Creek	51	5,200	3	0
Driscoll	14	2,259	1	0
Duniap	3	79	0	0
Duniay	3	0	3	0
Eagle Hill	11	388	4	0
East Placedo	2	167	0	1
El Mesquite	1	0	1	0
East White Point	132	18,240	2	2
East Plymouth	1	0	0	1
East Placedo	2	185	0	0
Ezzell	64	6,509	17	1
Escobas	20	616	5	0
Eckert	2	0	2	0
East Premont	2	1,080	0	0
East Mathis	2	54	0	1
Elm Creek	1	15	0	0
Fitzsimmons	39	4,212	1	1
Flour Bluff	2	360	0	0
Fox	2	349	1	0
Fannin	2	0	1	1
Frio Town	1	0	1	0
Gas Ridge	3	3	2	0
Glenn	1	18	0	0
Government Wells	4	128	1	1
Gutierrez	1	17	0	0
Greta	1	30	0	0
Heyser	42	5,645	3	2
Heard	1	0	0	1
Hoffman	78	5,812	8	4
H.W.F.	1	0	1	0
Ina	3	75	0	0
Junction	1	0	0	1
Kelsey	50	4,935	4	0
Keeran	7	421	0	1
Killam	7	155	1	2
Kimbro	5	13	2	0
Kingsbury	1	39	0	0
Lentz	2	115	0	0
La Rosa	61	8,919	2	1
La Blanca	1	60	0	0
Longhorn	37	5,207	2	0
Luby	42	4,842	0	0
La Coste	2	8	1	0
Luling	10	464	1	0
Lundell	22	2,010	0	2
Lopez	1	0	1	0
La Reforma	1	12	0	0
La Gloria	4	437	0	0
Los Olmos	2	0	2	0
Loma Novia	3	0	3	0
Lytton Springs	1	0	1	0
La Salvieja	1	0	1	0
London	1	0	1	0
Minnie Bock	24	2,258	2	0
McCampbell	145	21,543	0	1
McFaddin	30	3,410	1	0
Munson	8	841	0	0
Manda	2	0	2	0
McAllen	1	90	0	0
Mellon Creek	8	1,726	1	1
Mirando Valley	58	3,137	9	0
Margo	3	0	3	0
Magnolia City	5	427	3	0
Mountain View	2	0	1	1
Muralla	2	67	0	0
North Killam	11	377	4	0
North Agua Dulce	2	0	1	1
North Luby	5	228	3	0
North McFaddin	1	0	0	1
North Ricaby	1	75	0	0
O'Hern	2	130	0	0
Oakville	15	703	4	2
Odem	1	131	0	0
Peters	1	0	1	0
Powderhorn	1	0	0	1
Piedra de Lumbre	51	10,659	1	0
Plymouth	17	2,174	0	1
Premont	1	0	1	0
Piedra Pintas	7	80	2	0
Palangana	1	0	1	0
Rancho Solo	22	1,124	5	0
Refugio	14	1,733	0	0
Ricaby	8	484	2	0
Rockdale	18	53	6	0
Riverside	8	174	5	0
Rhodes	1	0	1	0
Ramirena	1	0	1	0
Richard King	19	2,449	2	0
Riddle	3	0	3	0
Rincon	9	300	6	1
Reynolds	35	3,633	6	2
Robstown	1	40	0	0
Seabury	1	8	0	0
Sejita	1	0	0	1
Schattel	2	0	2	0
Salt Flat	34	2,350	1	0
Samfordyce	30	2,013	6	0
Saxet	30	3,020	2	1
South Clara Driscoll	12	1,351	2	0
Sisterdale	1	0	1	0
Stratton	2	50	1	0
Staples	1	0	1	0
Sun	17	1,225	4	2
Somerset	3	23	0	0
South Alfred	5	757	1	0
South Ricaby	10	490	4	0
Southland	6	551	2	1
Slick	1	0	1	0
S.R.C.	12	568	2	0
Seven Sisters	7	424	0	3
San Domingo	1	0	1	0
San Jose	2	0	2	0
South Calliham	4	281	2	0
Tarancahaus	1	100	0	0
Tesoro	5	229	2	1
Tomoconnor	39	29,633	1	0
Tulsita	2	18	1	0
Turney	1	5	0	0
Thrall	1	0	0	0
Victoria	3	0	1	2
Volpe	13	693	3	0
Von Ormy	9	24	3	0
South Von Ormy	1	1	0	0
West Saxet	9	873	1	0
Walnut Creek	3	0	3	0
Weser	3	12	1	0
White Point	1	112	0	0
White Creek	17	560	8	1
Wood	1	0	1	0
West Cole	10	411	2	0
Wade City	2	10	0	1
Yoast	2	5	1	0
Zaborowski	2	7	1	0
Miscellaneous	429	0	429	0
Total 1939	2,424	204,591	745	87

Completions by Months

Month—	Comp.	Prod.	Abd.	Gas
January	175	18,135	45	5
February	247	24,619	62	8
March	215	20,111	65	8
April	189	20,745	49	4
May	263	19,971	87	8
June	172	15,077	50	2
July	233	16,033	93	7
August	182	11,873	68	7
September	165	12,262	42	15
October	179	14,163	59	11
November	175	15,526	54	6
December	229	16,076	71	6
Total 1939	2,424	204,591	745	87
Total 1938	2,568	295,350	747	105
Difference	144	90,759	2	18



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Annual Review

NORTH AND CENTRAL TEXAS AREAS HAD ONE OF BUSIEST YEARS

By D. H. STORMONT

ONE of the busiest years in exploration in the history of North Texas was seen in 1939, with the result that 31 new pools and new producing horizons in old pools were opened. Initial development has shown several of the new fields to be of significant importance.

Offsetting the somewhat declining activity in the K.M.A. pool, the Hull-Silk field of Archer County attracted continuous attention during the year with extensions completed almost monthly. K.M.A. continued to outclass Hull-Silk in total number of completions and new production, but as 1939 closed, drilling in the two fields was approximately level. Hull-Silk entered 1940 with 45 drilling wells.

Practically every county in the northern tier of North Texas shared in the year's development, there having been six new discoveries each in Archer, Montague and Clay counties, five in Cooke County, three in Wilbarger County, two each in Young and Jack counties and one in Baylor County.

Cooke County received, out of its five new discoveries, two Ordovician producing areas, one as a deep horizon in the increasingly active Walnut Bend field, and the other as a new spot just south of the town of Muenster. The latter area was the Voth pool, opened in January and ending the year with 24 producing wells. Ellenburger lime was found on top of a local high and at the comparatively shallow depth of 1,783 to 1,793 ft. Walnut Bend's Ordovician production is from the Ellenburger lime at a depth of 5,230 to 5,265 ft., the latter area being only about 20 miles northeast of the Voth pool.

Cooke County's three other discoveries included a lower Strawn producing horizon in the Walnut Bend

NORTH TEXAS DISCOVERIES IN 1939

County, location, discovery well—	Date	Depth	Gage	Formation	No. wells	Name pool	Remarks
Cooke, D. Fulton Sur., west central part of county, Whitfield, Pearson & Grimes' No. 2 B. Voth	Jan. 7	1,783-93	302 bbl., 17 hrs.	Ellenburger of Ordov.	24	Voth	
Baylor, Sec. 215, T.&N.O. Sur., 9 mi. E of Seymour, British American Oil Prod. Co.'s No. 1 E. C. Green	Jan. 18	2,580-2,605	260 bbl. oil, 190 bbl. wtr. day	Upper Canyon	7	Seymour	
Jack, Sec. 2784, T.E.&L. Sur., 3 mi. N of Jermyn, Pitzer & West's No. 1 Fred Warren	Feb. 8	4,365-4,418	150 bbl., 24 hrs.	Strawn	2	Warren	
Montague, J. Lenow Sur., 1 mi. W of Nocona, Rogers & Rogers' No. 1 J. E. A. Burnett	Feb. 10	4,639-48	523 bbl., 24 hrs.	Bend lime	10	Rogers & Rogers	
Archer, T. Cecil Sur., 4 mi. NE of Hull-Silk pool, Louis Sikes' No. 1 Ford	Feb. 12	4,375-4,402	200 bbl., 24 hrs.	Strawn	10	Sikes	Has proven to be part of Hull-Silk pool
Young, Newhaus Sur., 4½ mi. W of Graham, Groves & Brader's No. 1 Clark	Mar. 3	3,850-62	300 bbl., 24 hrs.	Caddo lime of Bend	1	Brader-Clark	
Montague, Blk. 55, M.E.P.&P. Sur., Abst. 528, J. W. Holmes and J. Benton's No. 1 J. Bowers estate	Mar. 15	2,887-2,925	523 bbl., 24 hrs.	Strawn	4	Benton & Holmes	
Clay, Blk. 94, J. Belcher Sur., 6 mi. SW of Blue Grove, L. T. (Bobby) Burns' No. 1 Browning	Mar. 17	4,432-61	1,348 bbl., 24 hrs.	Strawn	4	Burns	
Archer, Sec. 3, Blk. 4, H.&T.C. Sur., 7 mi. W of Mankins, E. P. Griffith's No. 1 Waggoner	Apr. 18	4,394-4,407	16 bbl. hourly	Strawn	2	Griffin	
Clay, Blk. 16, W.C. Sur., 2 mi. NE of Halsell, Bridwell Oil Co.'s No. 1 Furd Halsell	May 5	4,754-93	158½ bbl., 3 hrs.	Strawn	2	Halsell	
Archer, Blk. 4, Sec. 12, H.&T.C. Sur., 3 mi. S of Mankins, British American Prod. Co.'s No. 1 T. B. Wilson	June 2	4,666-96	830 bbl., 15 hrs.	Caddo of Bend	4	Mankins Deep	
Cooke, in Walnut Bend field, Sinclair Prairie Oil Co.'s No. 8 Best	June 10	5,141-73	214 bbl., 24 hrs.	Lower Strawn	2	.....	Deep horizon for Walnut Bend field
Archer, Lot 38, Blk. 4, C.&P. subd., Ralph C. Hart's No. 1 J. D. Carpenter	June 9	905-7	20 bbl., 7 hrs.	Thomas sand of Cisco	1	Hart	
Archer, Sec. 60, Blk. 3, C.&P. subd., Kadane Oil Corp.'s No. 1 Hemmi	June 30	5,164-5,284	165 bbl., 24 hrs.	Caddo of Bend	1	Kadane	
Cooke, W. A. Lynn Survey, 1¼ mi. S of Voth pool, J. M. & W. O. Russell and F. W. Lausen's No. 1 Stark,T.C.U.	July 17	1,125-43	109 bbl., 24 hrs.	Strawn	3	T.C.U.	
Montague, NE cor. SE¼ Blk. 55, M.E.P. &P. Sur., Abst. 528, J. W. Benton & J. W. Holmes' No. 2 Bowers	July 24	3,853-69	600 bbl., 24 hrs.	Granite wash	2	.....	Deep horizon for Benton & Holmes pool
Cooke, SE side of Walnut Bend field, Sinclair Prairie Oil Co.'s No. 10 Best	July 28	5,230-65	166 bbl., 6 hrs.	Ellenburger (Ordov.)	4	.....	Third deep horizon for Walnut Bend field
Archer, Blk. 1, H.&T.B. Sur., in Hull-Silk pool, Bert Ligon's No. 3-B Moss	July 30	1,285-93	64 bbl., 24 hrs.	Cisco	7	.....	Shallow horizon in Hull-Silk pool
Wilbarger, SE¼ Sec. 36, Blk. 6, H.&T.C. Sur., 3½ mi. NW K.M.A., Consolidated Oil Co. and Texas Eastern Oil Co.'s No. 1-CC Waggoner	Aug. 7	3,985-4,065	248 bbl., 24 hrs.	Lower Strawn	1	Consolidated	About 3 mi. W of K.M.A.
Wilbarger, D.L.&C. Sur., Abst. 1315, Pois & Schulz's No. 1 V. P. King	Aug. 12	1,900-9	140 bbl., 24 hrs.	Cisco	7	Pois & Schulz	
Montague, J. D. Jennings Sur., ½ mi. NW Rogers & Rogers pool, Youngblood & Foree's No. 1 Davis	Sept. 4	4,310-38	150 bbl., 24 hrs.	Lower Strawn	1	.....	Shallower horizon for Rogers & Rogers pool
Clay, Lot 11, Blk. 2, Clark & Plumb Sur., Sinclair Prairie Oil Co. and Frabor Hodges Corp.'s No. 1 Lorena Kinder	Sept. 10	4,133-58	157 bbl., 24 hrs.	Lower Strawn	1	.....	
Jack, J. Pointevant Sur., W of Bryson pool, Nelson Oil Syndicate's No. 1 Birdwell	Sept. 12	4,383-4,404	1,616 bbl., 24 hrs.	Bend	3	Nelson	
Young, Sec. 11, A.B.&M. Sur., 1 mi. SW Nelson pool, Cosden Pet. Co.'s No. 1 Shanafelt	Sept. 18	2,800-4	283 bbl., 24 hrs.	Strawn	2	.....	
Wilbarger, NE NE Sec. 35, H.&T.C. Sur., Consolidated Oil Co. and Texas Eastern Oil Co.'s No. 1 G. B. Ancell	Oct. 25	3,750-72	510 bbl., 24 hrs.	Strawn	10	.....	Shallower pay zone and most active of new area 3 mi. W of K.M.A.
Montague, L. S. Howard Sur., 1 mi. E of Benton & Holmes pool, United Producers and Continental Oil Co.'s No. 1 West	Nov. 5	3,914-44	504 bbl., 24 hrs.	Strawn	2	.....	Third and deepest horizon for Benton & Holmes pool
Clay, Taylor estate "C" lease, 5 mi. NW Petrolia, E. N. Costley's No. 1 C. T. Taylor	Nov. 18	1,050-74	211 bbl., 24 hrs.	Cisco	4	Costley	
Clay, W part of Wm. Walker Sur., Abst. 703, 4 mi. NW of Halsell pool, Continental Oil Co. and others' No. 1 O. O. Ross	Dec. 11	5,342-5,400	1,136 bbls., 24 hrs.	Smithwick lime of Bend	1	Ross	
Montague, Blk. 59, W. J. Wells Sur., in Rogers & Rogers pool, Stanolind Oil & Gas Co.'s No. 2 Davis	Dec. 20	5,225-49	1,920 bbl., 24 hrs.	Bend lime	1	.....	Third and deepest horizon for Rogers & Rogers pool
Cooke, Sec. 1, E.T. Sur., Abst. 385, Big Indian Oil & Dev. Co.'s No. 1 M. P. Morton	Dec. 26	2,509-17	25 bbl., 24 hrs., pumping	Strawn	1	.....	
Clay, Blk. 2605, T.E.&L. Sur., extreme SW cor. county, Shell Oil Co., Inc.'s No. 1 Henderson	Dec. 28	3,419-32	.....	Strawn	1	.....	Company drilling deeper and will plug back for test

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field, and a new Strawn-sand pool about a mile south of the Voth pool. This latter is called the T.C.U. pool after acreage owned in the area by Texas Christian University. Comparatively little importance is given the T.C.U. area since the discovery well was completed for 109 bbl. daily, pumping, and the two additional wells drilled were completed for 6 bbl. and 9 bbl. daily, respectively.

WEST CENTRAL AND NORTH TEXAS

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas
Archer	347	124,046	123	0
Baylor	16	2,838	8	0
Brown	84	1,053	59	6
Callahan	90	654	67	3
Clay	145	12,041	76	0
Coleman	38	5,186	20	3
Comanche	35	534	16	1
Cooke	165	29,729	47	1
Cottle	1	0	1	0
Denton	2	0	2	0
Eastland	34	126	23	6
Erath	2	0	2	0
Fisher	4	0	4	0
Foard	3	361	1	1
Hardeman	3	72	2	0
Haskell	7	0	7	0
Hood	2	0	2	0
Jack	128	14,143	68	0
Johnson	1	0	1	0
Jones	247	175,398	66	0
Lampasas	1	0	1	0
Mills	3	0	3	0
Montague	52	14,597	16	1
Palo Pinto	24	315	9	6
Parker	1	0	1	0
Runnels	2	25	1	0
Shackelford	193	76,922	78	6
Stephens	16	4,275	7	1
Taylor	20	847	11	2
Throckmorton	7	28	5	1
Wichita	524	251,380	112	0
Wilbarger	72	26,365	19	0
Wise	2	0	2	0
Young	255	47,456	119	4
Total 1939	2,526	788,391	979	42

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	165	43,477	56	3
February	185	42,904	83	2
March	167	34,706	75	6
April	190	53,416	79	1
May	271	59,405	132	8
June	216	73,415	90	1
July	211	77,018	74	4
August	197	58,123	80	4
September	196	88,963	71	3
October	244	79,492	80	7
November	215	72,092	81	0
December	269	105,380	78	3
Total 1939	2,526	788,391	979	42
Total 1938	3,130	875,321	1,114	43
Difference	604	86,930	135	1

Archer County's discoveries in 1939 were of considerable importance, the Sikes and the Mankins deep pools being the most important. The Sikes pool, at the time of its discovery, was 4 miles northwest of the main body of the Hull-Silk pool. Subsequent drilling throughout the latter part of the year saw the joining of this area with Hull-Silk and giving the combined area a total of 6,000 proven acres. Since the joining of the fields, extension producers and edge wells have broadened the limits of the field until it is one of the largest and most prolific in North Texas. The Mankins deep area, located 3 miles south of the town of Mankins in western Archer County, has four oil wells and offers possibilities of becoming a substantial field during 1940.

Montague County's six discoveries are confined to only two pools, with three distinct horizons in each. The Rogers & Rogers field, just outside the town of Nocona, was opened to production from the Bend lime in February and in September was given another level of production from the lower Strawn, a shallower pay than the original discovery horizon. In December a lower level of production from the Bend lime was found in the northern part of the field. All of the horizons offer good production possibilities and as the year closed it was not known which level would prove the most extensive.

The other new pool in Montague County was the Benton & Holmes area, opened by the operators from whom the field derived its name. The first production level was from the Strawn sand at 2,800 ft. In July, Benton & Holmes again brought in a discovery well, this one from the Granite wash pay at 3,800 ft. After two wells had been completed from this second level, United Producers and Continental Oil Co.'s No. 1 West, after missing the two above pay sections, found saturation and was completed in the lower Strawn at 3,950 ft. All three elevels are extremely spotted and local, and for this reason drilling is expected to be projected to a "zone of saturation" rather than any one of the three levels.

Perhaps most significant of all the North Texas discoveries were the five deep fields opened in Clay County. Prior to 1939 the only production of importance in the county was the old Petrolia field in the extreme northern part. This was producing from the relatively shallow Cisco sand. The first of the county's deep discoveries, which stimulated a widespread lower Strawn and upper Bend exploratory campaign in the southwestern quarter of the county, was the Burns pool. Opened in March by L. T. (Bobby) Burns, the field was closely followed by the Halsell pool, 8 miles to the north, discovered by Bridwell Oil Co. With two new deep pools indicating a rough trend throughout the southwestern quarter of the county, deep wildcats were staked and drilled during the summer over virtually the entire southern half of the county. This intense wildcatting program resulted in the opening of the Kinder pool in September, about 5½ miles west of the Burns pool; the Ross pool in early December, located just north and slightly west of the Halsell pool; and the yet ungaged Henderson area in the extreme southwestern corner of the county. The latter was opened by Shell Oil Co., Inc.'s No. 1 Henderson, possible production being from 3,419 to 3,432 ft. As the year closed the well was drilling deeper for a thorough test of the entire Strawn section.

Of prime importance among the district's discoveries was the Consolidated area just west of the K.M.A. pool and in extreme eastern Wilbarger County. It was opened by Consolidated Oil Co. and Texas Eastern Oil Co.'s No. 1-CC Waggoner, completed for 248 bbl. daily in August from the lower Strawn pay drilled from 3,985 to 4,065 ft. The operators' second well in the area found a much more prolific pay section from 3,750 to 3,772 ft. in the middle Strawn and was completed for 510 bbl. daily. All drilling since the opening of the field has been to the second and shallower horizon, and there were oil wells producing from that horizon as the year closed.

WEST CENTRAL TEXAS

One of the most active wildcatting years West Texas has ever experienced has just ended. The search for new production spread to practically every county in the district, and as a result 21 pools and deeper pay horizons in proven areas. were opened. The discoveries were scattered widely and nearly every county containing oil production received either new pools or new pay zones. There were four discoveries each in Shackelford and Stephens counties, three in Jones, two in Brown, and one each in Callahan, Coleman, Eastland, Palo Pinto and Taylor counties. Several of the discoveries are undergoing development, but in the early stages none give important promise.

Receiving the most development is the Bowles pool on the extreme edge of Taylor County. Production was opened in Cook sand at 1,753-56 ft. by Cooper-Roberts-Robinson's No. 2 Bowles, in Section 281, B.A.L. Survey, the well making 122 bbl. daily.

Three relatively deep pools were opened in Stephens County during the second half of the year, all of which give indications of becoming fairly large pools. In the latter part of July Wittmer Oil & Gas Properties' No. 1 B. D. Loving, SE¼ Section 66, B.A.L. Survey, came in for 107 bbl. daily from the Caddo lime of Bend series with pay from 3,492 to 3,512 ft.

Late in October T. G. Shaw, trustee, completed No. 1 S. P. Stroud, C. Newton Survey, for 165 bbl. daily from the Kysinger sand of the Strawn series, drilled from 2,587 to 2,602 ft. Two additional wells were drilled by the same operator and others were either drilling or were staked for drilling as the year closed.

NORTH TEXAS

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
ARCHER COUNTY:													
Daily average	10,440	10,342	10,585	10,629	10,848	10,815	10,460	8,474	11,300	11,392	11,420	12,060	
Month	323,630	289,566	328,136	318,861	336,281	324,461	324,261	262,703	338,994	353,150	354,011	373,865	3,927,919
BAYLOR COUNTY:													
Daily average	1,109	1,129	1,106	1,091	1,085	1,063	1,136	987	1,049	907	1,082	1,107	
Month	34,381	31,621	34,300	32,736	33,648	31,890	35,210	30,599	31,479	28,130	32,454	34,317	390,765
CLAY COUNTY:													
Daily average	1,914	1,963	2,085	2,494	2,460	2,491	2,370	1,417	2,506	2,224	2,509	2,580	
Month	59,341	54,963	64,636	74,825	76,253	74,727	73,484	43,922	75,170	68,953	75,270	79,984	821,528
COOKE COUNTY:													
Daily average	4,526	4,613	4,817	5,155	5,333	5,611	5,713	3,813	6,155	6,381	6,082	6,207	
Month	140,302	129,171	149,335	154,647	165,335	168,330	177,099	118,209	184,637	197,814	182,466	192,410	1,959,755
FOARD COUNTY:													
Daily average	446	507	527	494	400	460	360	411	421	428	418	429	
Month	13,817	14,191	16,339	14,822	12,409	13,792	11,144	12,749	12,642	13,276	12,529	13,300	161,010
JACK COUNTY:													
Daily average	6,426	6,175	6,410	6,787	6,662	6,312	6,329	3,887	6,172	5,831	6,012	6,064	
Month	199,203	172,894	198,725	203,604	206,513	189,361	196,189	120,510	185,146	180,766	180,562	187,992	2,221,465
MONTAGUE COUNTY:													
Daily average	5,014	5,007	5,164	5,363	5,383	5,410	5,392	3,535	5,680	5,552	5,715	5,618	
Month	155,420	140,206	160,096	160,892	166,868	162,300	167,157	109,592	170,398	172,127	171,442	174,150	1,910,648
WICHITA COUNTY:													
K.M.A.—													
Daily average	19,002	18,644	19,719	22,888	22,694	24,809	22,820	12,287	23,833	25,120	28,285	29,676	
Month	589,057	522,041	611,278	686,626	703,510	744,276	707,418	380,911	714,978	778,725	848,550	919,949	8,207,319
Burkburnett—													
Daily average	5,039	4,907	5,102	5,006	4,970	5,096	4,916	4,330	4,910	4,927	4,918	4,907	
Month	156,210	137,400	158,170	150,184	154,070	152,872	152,400	134,236	152,216	152,740	147,544	152,110	1,800,152
Electra—													
Daily average	8,810	8,756	8,696	8,405	8,412	8,879	8,790	7,516	8,675	8,660	8,676	8,205	
Month	273,115	245,174	269,568	252,149	260,775	266,361	272,481	232,992	268,926	268,454	260,282	254,360	3,124,637
Miscellaneous—													
Daily average	939	1,112	1,862	1,110	1,147	1,111	1,132	925	1,116	1,100	1,094	1,110	
Month	29,119	31,135	57,722	33,300	35,557	33,326	35,092	28,675	34,596	34,111	32,817	34,119	419,569
WILBARGER COUNTY:													
Daily average	8,535	9,133	8,457	8,815	9,019	8,265	8,509	6,574	8,631	8,290	8,246	8,326	
Month	264,594	255,726	262,155	264,450	279,602	247,954	263,774	203,806	258,925	256,986	247,366	258,100	3,063,447
YOUNG COUNTY:													
Daily average	10,283	10,149	10,215	10,488	10,524	10,507	10,360	7,078	11,355	10,161	10,839	10,090	
Month	318,787	284,161	316,666	314,654	326,249	315,210	321,145	219,410	340,648	315,001	325,174	312,791	3,709,896
Daily average	82,483	82,437	84,746	88,725	88,938	90,829	88,286	61,236	92,292	90,978	95,682	96,369	86,899
Total 1939	2,556,976	2,308,249	2,627,126	2,661,759	2,757,070	2,724,860	2,736,854	1,898,314	2,768,755	2,820,233	2,870,467	2,987,447	31,718,110
Total 1938	1,945,461	1,766,208	2,036,377	2,084,460	2,071,764	1,961,387	2,156,517	2,171,149	1,994,573	2,060,341	2,042,045	2,217,500	24,407,782
Total 1937	1,778,992	1,846,548	2,103,245	2,051,278	2,158,059	2,085,354	2,098,609	2,128,609	2,061,387	2,097,033	1,993,370	2,064,992	24,668,486
Total 1936	1,922,589	1,731,764	1,910,158	1,913,520	2,970,360	1,897,470	1,985,674	1,986,790	1,948,500	2,027,524	1,976,820	2,086,114	23,357,283
Total 1935	1,879,747	1,740,760	1,874,384	1,825,350	1,919,210	1,852,710	1,925,813	1,828,349	1,932,990	1,880,305	1,885,890	1,935,640	22,481,148

Stephens County's third new pool was opened early in December by George E. Fagg's No. 1 W. B. Richardson, in Section 5, Block 3, S.P. Survey. Production was found, as in the Loving pool, from the Caddo lime drilled from 4,028 to 4,033 ft.

Centering the majority of the field development, as well as a large amount of the wildcat activity of the district, was the Palo Pinto lime trend extending from northwestern Shackelford County diagonally across Jones County. Along this trend lies the Ivy pool in extreme northwestern Shackelford County and the Avoca and Griffin pools in Jones County.

Greatest amount of drilling in one single field was seen in the Griffin pool in Jones County. Starting the year with only three wells, there were 64 oil wells at the year's end, and an estimated oil reserve of near 9,000,000 bbl.

The Guitar pool in southeastern Jones County received considerable stimulus during the year as deep drilling was launched to the lower Hope lime. The deeper horizon was opened to production in June by T. D. Humphrey's No. 2 Guitar, Section 44, Block 15, T.&P. Survey, and during the second half of the year 14 wells have either been deepened from the old and semidepleted pay, or drilled anew. The deeper horizon in the discovery well was drilled from 2,139 to 2,152 ft., the well making 40 bbl. daily.

WEST CENTRAL TEXAS DISCOVERIES IN 1939

County, location, and discovery well—	Date	Depth	Gage	Formation	No. of wells	Name of pool	Remarks
Shackelford—Sec. 210, E.T. Sur., west part of county; Jessie L. Douglas' No. 1 W. D. Baker	Jan. 6	1,883-93	50 bbl./day	King sand	1	Douglas pool	
Callahan—Sec. 281, B.A.L. Sur., on Taylor and Callahan county line; Cooper-Roberts-Robertson' No. 2 Bowles	Jan. 24	1,753-56	122 bbl./day	Cooke sand	11	Bowles	
Palo Pinto—Sec. 1789, T.E.&L. Sur.; J. W. Lane and W. D. Dilbeck's No. 1 Dalton	March 2	1,220-38	75 bbl./day	Strawn	2	Lane area	
Jones—SW¼ Sec. 31, B.B.B.&C. Sur.; Gregg Oil Co.'s No. 1 Appling	March 4	2,832-35	28½ bbl./hr.	Swastika sand	4	Appling pool	
Stephens—Sec. 39, Blk. 7, T.&P. Sur.; Lone Star Gas Co.'s No. 1 S. S. McKee	March 14	4,107-17	268 bbl./day	Ellenburger of Lower Ordovician	1	McKee area	
Callahan—M. Cherry Sur., near Eastland County line; L. A. Warren & Kleiner's No. 1 Cozart	March 31	1,651-75	45 bbl./day	Cisco sand	4	Scranton area	
Coleman—Southeast part of David Breeding Sur.; Anzac Oil Co.'s No. 4-C Morris ranch	June 28	2,174-90	2,250 bbl./day	Upper Strawn	3	Anzac area	
Eastland—Sec. 476, S.P. Sur.; Lone Star Gas Co.'s No. 1 G. F. Mitcham	June 16	3,890-3,914	2,300,000 cu. ft. gas/day	Bend	1	Cisco Lake area	
Jones—Sec. 44, Blk. 15, T.&P. Sur., in Guitar pool; T. D. Humphrey's No. 2 Guitar	June 9	2,139-52	40 bbl./day	Lower Hope lime	14		Deeper horizon for Guitar pool.
Stonewall—Sec. 45, Blk. D, H.&T.C. Sur.; Forest Dev. Co. and King Drlg. Co.'s No. 1 Boyd	April 1	4,690-4,727	188 bbl./day	Palo Pinto	1	Boyd	Well completed by Helmerich & Payne Drlg. Co.
Stephens—SE¼ Sec. 66, B.A.L. Sur., Wittmer Oil & Gas Prop.'s No. 1 B. D. Loving	Aug. 2	3,492-3,512	107 bbl./24 hr.	Caddo lime of Bend	2	Loving	
Brown—Cen. Mose Little Sur., SW of Smith-Ellis pool, J. C. Hart & Sons' No. 4-B Richmond	Aug. 21						
Shackelford—Peter G. Holcomb Sur., Fain-McGaha Oil Corp.'s No. 1 Dawson-Conway	Sept. 25	1,491-97	131 bbl./24 hr.	Bluff Creek sand	4	Dawson-Conway	
Jones—Sec. 3, League 359, Goliad County School Lands, R. R. Carroll's No. 2 G. Herndon	Sept. 30	2,880-85	8 bbl./24 hr.		2	Herndon	
Shackelford—Sec. 14, B.A.L. Sur., B. & F. Bonded Cotton Warehouse Co.'s No. 1 Emma Spell	Sept. 30	605-22		Cisco	3		
Stephens—G. Newton Sur., T. G. Shaw, trustee's No. 1 S. P. Stroud	Oct. 23	2,597-2,602	165 bbl./24 hr.	Kysinger sand of Strawn	3	Stroud	
Brown—Myrum Mudgets Sur., near Grosvenor, Wirt Davis and McDonald & Campbell's No. 1 W. P. Hill	Oct. 24	1,309-12	110 bbl./24 hr.	Fry sand of Strawn	2		
Stephens—Sec. 5, Blk. 3, S.P. Sur., George E. Fagg's No. 1 W. B. Richardson	Dec. 5	4,028-33	232 bbl./24 hr.	Caddo lime of Bend	1	Fagg	
Shackelford—SW NW Sec. 113, E.T. Sur., Roeser & Pendleton's No. 2-A Cook	Dec. 11	1,566-82	40 bbl./24 hr.	Cook sand of Cisco	1		

CENTRAL TEXAS

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
BROWN:													
Daily average	1,605	1,598	1,625	1,559	1,606	1,602	1,603	1,122	1,623	1,575	1,321	1,635	
Month	49,748	44,738	50,386	46,772	49,780	48,056	49,680	34,771	48,682	48,820	39,620	50,717	561,770
CALLAHAN:													
Daily average	1,149	1,154	1,178	1,167	1,162	1,164	1,108	881	1,237	1,101	948	1,173	
Month	35,612	32,320	36,524	34,997	36,007	34,923	34,349	27,315	37,097	34,137	28,400	36,367	408,068
COLEMAN:													
Daily average	973	1,003	1,023	1,009	1,065	1,043	1,179	630	1,223	995	916	1,157	
Month	30,150	28,099	31,701	30,276	33,019	31,288	36,538	19,535	36,695	30,852	27,480	35,852	371,485
COMANCHE:													
Daily average	85	91	93	127	135	133	188	134	245	261	254	236	
Month	2,631	2,554	2,879	3,806	4,185	3,996	5,835	4,156	7,340	8,102	7,620	7,328	60,432
EASTLAND:													
Daily average	2,782	2,742	2,726	2,676	2,789	2,740	2,692	2,397	2,575	2,523	1,888	2,654	
Month	86,235	76,793	84,504	80,292	86,470	82,207	83,457	74,311	77,246	78,227	56,640	82,277	948,659
ERATH:													
Daily average	75	59	69	73	67	69	65	56	62	66	51	66	
Month	2,314	1,662	2,152	2,199	2,065	2,061	2,026	1,732	1,867	2,038	1,540	2,036	23,692
FISHER:													
Daily average	3,292	3,135	3,192	3,338	3,129	3,137	2,877	2,006	2,828	2,661	2,301	2,850	
Month	102,047	87,772	98,967	100,151	96,989	94,116	89,187	62,177	84,855	82,482	69,040	88,358	1,056,141
HASKELL:													
Daily average	113	107	99	96	89	88	67	54	71	59	67	67	
Month	3,500	2,982	3,058	2,867	2,744	2,643	2,078	1,663	2,133	1,839	2,016	2,073	29,596
JONES:													
Daily average	6,418	6,766	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Month	198,960	189,453	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	388,413
Avoca—													
Daily average	.....	.....	1,431	1,702	1,560	1,550	1,598	905	1,462	1,380	1,347	1,513	
Month	.....	.....	44,376	51,054	48,358	46,488	49,533	28,062	43,870	42,783	40,395	46,908	441,827
Griffin—													
Daily average	.....	.....	1,251	1,830	1,849	1,811	2,796	1,682	2,529	1,792	2,090	2,632	
Month	.....	.....	38,791	54,902	57,328	54,327	86,672	52,146	75,884	55,540	62,695	75,327	613,612
Hawley—													
Daily average	.....	.....	581	553	526	520	447	261	479	389	381	446	
Month	.....	.....	18,019	16,598	16,291	15,600	13,845	8,106	14,378	12,059	11,427	13,876	140,199
Appling—													
Daily average	.....	.....	58	83	89	84	216	123	185	180	148	195	
Month	.....	.....	1,800	2,500	2,744	2,516	6,700	3,800	5,560	5,584	4,448	6,143	41,795
Old pools—													
Daily average	.....	.....	4,144	4,359	4,114	4,210	4,340	2,601	4,629	4,229	3,852	4,495	
Month	.....	.....	128,461	130,760	127,522	126,314	134,534	80,621	138,869	131,114	115,561	139,334	1,253,090
Akard—													
Daily average	.....	.....	.....	.....	74	75	102	78	78	80	39	90	
Month	.....	.....	.....	.....	2,297	2,248	3,149	2,410	2,341	2,484	1,158	2,747	18,834
PALO PINTO:													
Daily average	344	331	342	337	332	330	376	318	403	377	321	294	
Month	10,666	9,274	10,606	10,101	10,305	9,911	11,665	9,866	12,090	11,701	9,620	12,109	127,914
SHACKELFORD:													
Daily average	5,747	5,643	5,889	6,060	5,901	5,891	6,068	3,988	6,629	6,798	5,596	6,641	
Month	178,148	158,012	182,554	181,802	182,947	176,725	188,107	123,632	198,872	210,733	167,880	205,878	2,153,290
STEPHENS:													
Daily average	3,532	3,558	3,497	3,637	3,634	3,616	3,391	2,421	3,466	3,425	2,845	3,503	
Month	109,476	99,615	108,399	109,109	112,643	108,480	105,117	75,059	103,984	106,169	85,340	108,593	1,231,984
STONEWALL:													
Daily average	48	51	116	105	151	149	168	141	83	64	100	108	
Month	1,473	1,424	3,592	3,138	4,687	4,472	5,216	4,360	2,505	1,987	3,000	3,344	39,198
TAYLOR:													
Daily average	143	93	108	123	127	126	154	151	230	304	158	235	
Month	4,448	2,615	3,363	3,704	3,933	3,780	4,786	4,670	6,903	9,434	4,740	7,276	59,652
THROCKMORTON:													
Daily average	287	285	284	289	309	304	307	228	285	269	285	293	
Month	8,910	7,976	8,797	8,664	9,570	9,125	9,520	7,060	8,545	8,341	8,540	9,095	104,143
Daily average	26,591	26,617	27,707	29,123	28,708	28,642	29,742	20,176	30,324	28,530	24,905	30,182	27,605
Total 1939	824,318	745,289	858,929	873,692	889,884	859,276	921,994	625,452	909,716	884,426	747,160	935,638	10,075,774
Total 1938	1,210,578	1,067,000	1,198,932	1,143,095	1,131,012	1,087,834	1,206,770	1,224,734	1,133,841	1,172,134	1,136,129	1,189,311	13,901,370
Total 1937	1,030,593	992,761	1,139,200	1,116,447	1,183,185	1,172,721	1,178,315	1,194,484	1,177,382	1,220,022	1,131,783	1,187,120	13,724,013
Total 1936	888,801	805,562	873,270	880,650	938,339	918,780	1,011,902	980,127	1,001,520	1,004,369	985,260	1,008,771	11,297,351

Crude-Oil Price Changes During 1939

Sinclair Prairie Oil Marketing Co. on Aug. 10, posted a 20-cent reduction in all fields in which it buys, followed on Aug. 11 by price cuts of Humble Oil & Refining Co. in Texas and New Mexico and then by Standard Oil Co. of Louisiana in Louisiana and Arkansas. Some companies met the new prices posted by Sinclair, Humble, and Louisiana Standard, but noticeable among those that did not were Gulf Refining Co., Texas Co., Carter Oil Co., Pure Oil Co., and Magnolia Petroleum Co., which made no changes. Some of those that met cuts in one state did not do so in another. Notably, in Oklahoma and Kansas, Standard Oil Co. of Indiana, Shell Oil Co., Inc., Continental Oil Co. went along with Carter, Magnolia, Texas, Pure, and Gulf in standing pat on their old price schedules of last fall.

Humble Oil & Refining Co. restored its prices on Aug. 29, after the Texas Railroad Commission shut down the fields of that state, and made the restoration retroactive to Aug. 11. Therefore there was no break in Humble's prices.

In meeting Humble's prices, Shell Oil Co., Inc., cut prices in fields in which it purchases in Texas on Aug. 11, and restored them effective Aug. 29, but adopted a gravity scale in the East Texas field ranging from below 34° at 98 cents to a top of $1.10 for 39° and over. Atlantic Refining Co., which met Humble prices in Southwest Texas on Aug. 11, rescinded its action and restored its prices retroactive to Aug. 11. Republic Pipe Line Co., buying in Saxet, Plymouth, East White Point, and Midway, and at Heyser and in Duval County, met Humble prices on Aug. 11 and when it restored its old schedules made them all retroactive to Aug. 11. Prior to Aug. 11 the Republic company's prices in Heyser and Duval County ended at 35° and above, while Humble carried them up to 40° and above. When the cut was made Republic adopted Humble's gravity scale, and when it restored its prices retained the 40° schedule and prices of the Humble, which represents an increase over Republic's original postings for oil in the higher brackets. Barnsdall Pipe Line Co. effective Aug. 28 posted a gravity scale in Southwest Texas pools in which it purchases, beginning with 20-20.9°, 77 cents, adding 2 cents for each degree upward to 27-27.9° and then adding 3 cents for each degree up to a top of 40° and above at $1.25. Companies restoring prices in East Texas following the Humble Oil & Refining Co. included De Soto Crude Oil Purchasing Co., Atlantic Refining Co., Tide Water Associated Oil Co., East Texas Refining Co., and Premier Oil Refining Co., all of which made their restored prices retroactive to Aug 11; Stanolind Oil Purchasing Co. effective Aug. 12; Toronto Pipe Line Co. and Shell Oil Co., Inc., effective Aug. 20; Bell General Pipe Line Co., Arkansas Fuel Oil Co., and Cities Service Oil Co. effective Aug. 30. Shell and Cities Service went on a gravity basis in East Texas, starting at below 34°, 98 cents, with 2 cents added for each degree up to a top of $1.10 for 39° and over. Sinclair Prairie's East Texas price started at below 33° at 96 cents, with a top of $1.10 for 39° and over.

In Louisiana and Arkansas none of the companies made its prices retroactive to the day it made its cut. Effective Aug. 30 Standard Oil Co. of Louisiana went back to its old price schedules, as did Arkansas Fuel Oil Co., Lion Oil Refining Co., H. H. Cross Co., McMillan, and Placid Oil Co. Effective Aug. 29 Root Petroleum Co. and Stanolind Oil & Gas Co. readopted their old prices.

In Oklahoma and Kansas where Sinclair Prairie led off with its 20-cent price cuts on Aug. 10 that company restored its old prices effective Aug. 31. Cities Service Oil Co., Champlain Refining Co., and Skelly Oil Co. also cut 20 cents per barrel but restored their prices. Cities Service Co. on Aug. 30, Champlain Refining Co. on Aug. 30, and Skelly Oil Co. on Sept. 1.

OKLAHOMA AND KANSAS

Gravity—	Jan. 1	Feb. 16	Jan. 1
20-20.9	$.70	...	$.60
21-21.9	.72	...	.63
22-22.9	.74	...	.66
23-23.9	.76	...	.69
24-24.9	.78	...	.72
25-25.9	.80	$.58	.75
26-26.9	.82	.63	.78
27-27.9	.84	.68	.81
28-28.9	.86	.73	.84
29-29.9	.88	.78	.87
30-30.9	.90	.82	.90
31-31.9	.92	.86	.92
32-32.9	.94	.90	.94
33-33.9	.96	.96	.96
34-34.9	.98	.98	.98
35-35.9	1.00	1.00	1.00
36-36.9	1.02	1.02	1.02
37-37.9	1.04	1.04	1.04
38-38.9	1.06	1.06	1.06
39-39.9	1.08	1.08	1.08
40 and over	1.10	1.10	1.10

Column 1—By Standard Oil Co. of Indiana, Gulf Refining Co., Carter Oil Co. schedule and prices same from 30° upward, but on lower gravities pays below 21° 60 cents, with 3 cents added for each degree up to and including 29-29.9°. Gulf Oil Corp. starts at below 25° 78 cents. Texas Co. schedule starts at 28-28.9° at 86 cents. Pure Oil Co. same as Standard of Indiana's schedule. By Sinclair Prairie Oil Marketing Co. up to February 15, inclusive.

Column 2—Sinclair Prairie Oil Marketing Co. on August 10 made a 20-cent reduction in all its prices, and on August 31 restored the prices.

Column 3—Magnolia Petroleum Co.; Shell Petroleum Corp. up to March 31; Shell Oil Co., Inc., April 1, 1939.

NORTH LOUISIANA AND ARKANSAS

Shreveport, La. (Sept. 7, 1939)	$1.05
	See note below
Smackover, Ark. (Oct. 5, 1938)*	.73
Buckner, Magnolia, and Village, Ark. (Sept. 13, 1939)*	See note below
Schuler, Jones sand (Sept. 13, 1939)	.79
Schuler, Reynolds sand (Sept. 13, 1939)	.91
Tullos and Urania	.89
Cotton Valley, La. (distillate) (Dec. 23, 1938)*	1.20
Cotton Valley (Holloway sand) (Dec. 16, 1939)	1.00
Lisbon, La.	See note below
Atlanta, Ark. (Sept. 13, 1939)	.93
Magnolia, Ark. (Sept. 13, 1939)	.93
University, La. (Sept. 11, 1939)	See note below

*Smackover posted by Standard Oil Co. of Louisiana, Oct. 5, 1938; by Magnolia Petroleum Co., Oct. 12; by Gulf Refining Co., Oct. 13; McMillan Refining Co. and Cross Refining Co. met price. Tullos and Urania posted by Hunt Oil Co. and Arkansas Fuel Oil Co. Effective Sept. 16 Standard of Louisiana changed it from 90 cents to 75.

Schuler Jones-sand schedule started at below 25°, 66 cents, with 2-cent spread to 40° and over at 98 cents; by Lion Oil Refining Co.; Schuler light Morgan-sand crude takes North Louisiana gravity scale along with El Dorado and Champagnolle; by Lion Oil Refining Co. Effective Sept. 13, Lion posted Schuler (Jones sand), 79 cents; Schuler (Reynolds lime), 91 cents; Atlanta, 93 cents, and Magnolia, 93 cents.

Root Petroleum Co., Sept. 16, posted: Schuler Reynolds lime, 95 cents for 40 gravity and above, with a 2-cent differential for each gravity below, and Schuler Jones sand, 74 cents flat.

Dixie Pipe Line posted 80 cents for Magnolia April 1, 1939, and Standard of Louisiana 80 cents on August 8.

Buckner, Magnolia, and Village posted by Standard Oil Co. of Louisiana and Lion Oil Refining Co., which had taken the same prices as for Schuler Jones-sand crude were placed on gravity schedule effective Sept. 13, 1939, by Standard Oil Co. of Louisiana, starting at below 25° at 63 cents, with 2 cents added for each degree up to 40 and over at 95 cents.

Shreveport was posted by Caddo Crude Oil Producing Co. and Atlas Oil Corp. April 18 at $1.05; by Atlas March 11, at 98 cents; Caddo, March 13, $1.06; Atlas and Caddo, March 25, $1.01; April 15, $1.05; July 17, 95 cents; August 14, 85 cents. Effective Sept. 7, 1939, Standard Oil Co. of Louisiana posted gravity prices in Shreveport field beginning at below 25°, 73 cents; 25-25.9°, 75 cents, with 2 cents added for each degree up to 40 and over at $1.05, met by Caddo and Atlas.

Effective May 1 Gulf Refining Co. posted a flat price of 77 cents in Lisbon. Caddo Crude Oil Purchasing Co. had posted 73 cents for 34°; 75 cents, 34.9° and 77 cents for 35.9° on April 29, and on August 1 posted a gravity basis; 56 cents for 27° with 2 cents differential to 72 cents for 35° and above. Sept. 14 Gulf Refining Co. and Caddo Crude Oil Purchasing Co. posted 27-27.9°, 66 cents, with 2 cents added for each degree up to 35 and over at 82 cents. On Sept. 19 it posted 34° at 88 cents; with 2 cents differential to 36° at 92 cents.

In the Baton Rouge (University) field, Louisiana, effective Sept. 11, Standard Oil Co. of Louisiana posted below 20° 79 cents, with 3 cents added for each degree upward to 26-26.9° at $1. and then 2 cents added for each degree up to 40 and over at $1.28.

Effective Dec. 16 Standard Oil Co. of Louisiana posted a flat price of $1.10 per bbl. for Holloway-sand crude oil in the Cotton Valley, Louisiana, field. Bodcaw and "D" sand crude in Cotton Valley will continue to be purchased on a gravity basis with prices unchanged.

EVANGELINE, LOUISIANA

Gravity—	Jan. 1	July 9
31-31.9	$0.87	$0.80
32-32.9	.89	.82
33-33.9	.91	.84
34-34.9	.93	.86
35-35.9	.95	.88
36-36.9	.97	.90
37-37.9	.99	.92
38-38.9	1.01	.94
39-39.9	1.03	.96
40 and over	1.05	.98

Posted by Stanolind Oil & Gas Co.

WEST TEXAS (EXCEPT PECOS COUNTY) AND LEA COUNTY, NEW MEXICO

Gravity—	Jan. 1
Below 20	$0.53
20-20.9	.55
21-21.9	.57
22-22.9	.59
23-23.9	.61
24-24.9	.63
25-25.9	.65
26-26.9	.67
27-27.9	.69
28-28.9	.71
29-29.9	.73
30-30.9	.75
31-31.9	.77
32-32.9	.79
33-33.9	.81
34-34.9	.83
35-35.9	.85
36-36.9	.87
37-37.9	.89
38-38.9	.91
39-39.9	.93
40 and over	.95

Humble Oil & Refining Co., Texas Co. schedule starts below 26°, 65 cents, and ends at 36° and over at 87 cents. Gulf Refining Co. starts at below 26° at 65 cents and ends at 40° and over at 95 cents. Magnolia Petroleum Co. schedule starts below 25°, 63 cents, and ends at 40° and above at 95 cents. Sinclair Prairie Oil Marketing Co. schedule same as that of Magnolia, but revised on Mar. 24, 1939, to stop at 36° and over at 87 cents. Sinclair cut price 20 cents Aug. 10 and restored it Aug. 31. Effective Sept. 1, 1939, Shell Oil Co., Inc., posted Yoakum County crude, starting at below 20°, 53 cents, with 2 cents added for each degree up to 36° and over at 87 cents. Stanolind Oil Purchasing Co. schedule same as that of Humble. Stanolind Oil & Gas Co. (Winkler County) starts at below 26°, 65 cents, with a 2-cent spread, and a top of 95 cents for 40° and above.

CENTRAL AND NORTH TEXAS

Gravity—	Jan. 1
24-24.9	$0.71
25-25.9	.73
26-26.9	.75
27-27.9	.77
28-28.9	.79
Below 29	...
29-29.9	.81
30-30.9	.83
31-31.9	.85
32-32.9	.87
33-33.9	.89
34-34.9	.91
35-35.9	.93
36-36.9	.95
37-37.9	.97
38-38.9	.99
39-39.9	1.01
40 and over	1.03

Humble Oil & Refining Co. in Central Texas, Magnolia Petroleum Co. schedule in North and Central Texas, same as the Humble, excepting that it starts at below 29° at 79 cents. Texas Co. schedule in North and Central Texas, same as Magnolia, Gulf Refining Co. same as Texas Co. Sinclair Prairie Oil Marketing Co., in Mexia and North Central Texas, paid below 29°, 76 cents, with 2 cents added for each degree up to and including 40° and over at $1. On Aug. 10 Sinclair cut price 20 cents and restored it Aug. 31, and on Oct. 5 posted a 3-cent advance. Stanolind Oil Purchasing Co. schedule below 21°, 60 cents, with a 2-cent spread to 40° and over at $1.

EAST CENTRAL TEXAS

(Mexia District)

Gravity—	Jan. 1
23-23.9	$0.78
24-24.9	.80
25-25.9	.82
26-26.9	.84
27-27.9	.86
28-28.9	.88
Below 29	...
29-29.9	.90
30-30.9	.92
31-31.9	.94
32-32.9	.96
33-33.9	.98
34-34.9	1.00
35-35.9	1.02
36-36.9	1.04
37-37.9	1.06
38-38.9	1.08
39-39.9	1.10
40 and over	1.12

Humble Oil & Refining Co. Sinclair, which paid 76 cents below 29° and 2 cents differential to $1 for 40 and over, cut 20 cents Aug. 10 and restored it Aug. 31, and on Oct. 5 posted a 3-cent advance.

VAN, TEXAS

	Jan. 1
Van, Texas	$0.93

TALCO

	Jan. 1	*Oct. 2
Talco field	$0.55	$0.65

*Humble Oil & Refining Co.

CRUDE PRICES MIDDLE WESTERN STATES

	Jan. 1	Jan. 6	Mar. 15	Apr. 10	Apr. 12	Apr. 16	Apr. 18	Apr. 20	Apr. 27	June 8	June 9	June 19	July 17	Sept. 22	Oct. 9	Oct. 10	Nov. 1
Lima	$0.90	...	...	...	...	...	...	...	...	$0.95	...	...	...	...	...	...	...
Illinois	1.05	...	...	...	...	...	...	...	...	1.05	...	...	...	...	...	...	...
Illinois basin	1.15	...	...	...	...	...	...	$0.95	...	...	...	...	...	...	...	...	...
Princeton, Ind.	1.05	...	...	...	$1.00	...	...	...	...	...	$0.90	...	...	...	...	...	...
Western Kentucky†	1.05	...	...	...	...	...	...	...	...	...	.90	...	...	...	...	...	...
Birk City, Ky.‡	1.05	...	...	...	...	...	...	...	...	...	.90	...	...	...	...	...	...
Corydon, Ky.‡	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Greendale, Porter, Crystal, and Wise, Mich.*†	.785	.925	...	...	...	...	$0.975	...	...	...	...	...	...	$1.02	...	...	...
Buckeye, Bentley, Edenville, Beaverton, Mich.*	.76	.90	...	...	...	...	.95	...	...	...	...	...	...	1.00	...	...	...
Freeman—Redding, Mich.*	.68	.82	...	...	...	...	.89	...	...	...	...	...	...	.97	...	...	...
West Branch—Arenac, Mich.*	.70	...	...	...	...	...	...	...	...	...	...	...	...	.82	...	...	.85
Allegan—Kent, Mich.‡	..	...	**$.68	...	...	$0.88	...	...	...	...	...	...	.95	...	1.03	...	...
Walker—Kent, Mich.	...	...	...	...	...	...	...	...	$0.78	...	...	...	.95	...	1.03	...	...
Kent County, Mich.	...	...	...	...	...	...	...	...	...	...	...	$0.88	...	...	1.03	...	...
Sherman, Mich.‡	.82	...	...	...	...	...	.89	...	...	...	...	...	...	.97	...	...	...
Eastern Kentucky:																	
Big Sandy River†	1.12	...	...	...	...	...	...	...	...	...	1.02	...	...	...	...	...	...
Kentucky River†	1.20	...	...	...	...	...	...	...	...	...	1.10	...	...	...	...	...	...
Van Buren, Mich.	.84	...	...	$.88	...	...	...	...	...	...	...	...	.83	.90	...	.98	1.03

*Simrall Corp. †Ashland Refining Co ‡Pure Transportation Co. pays above prices in Porter, Greendale, and Sherman, effective April 20. §Imperial Refining Co. **Commonwealth Pipe Line Co. Zelland Township, Ottawa County, 77 cents, Sept. 22, and 85 cents, Oct. 9.

CALIFORNIA CRUDE-OIL PRICES IN 1939

Gravity—	Richfield Jan. 1	Santa Fe Springs Jan. 1	Montebello Jan. 1	Montebello Aug. 11	Athens, Rosecrans Jan. 1	Mountain View Jan. 1	Elwood Terrace Jan. 1	Beiridge‡ Jan. 1	El Segundo Jan. 1	Kettleman Hills Jan. 1	Greeley Canal Jan. 1	Olinda-Brea Canyon Jan. 1
14-14.9	$.76	...	$.77	$.77	...	...	...	$.70	$.80	...	...	$.76
15-15.9	.76	...	.77	.77	...	...	...	.70	.80	...	...	.76
16-16.9	.76	...	.77	.77	...	...	...	.70	.80	...	...	.76
17-17.9	.76	...	.77	.77	...	...	...	.70	.80	...	...	.76
18-18.9	.76	...	.77	.77	...	...	...	.70	.80	...	...	.78
19-19.9	.76	...	.77	.77	...	$.70	...	.74	.82	...	...	.81
20-20.9	.78	...	.77	.77	...	.70	...	.78	.85	...	...	.84
21-21.9	.80	$.78	.77	.77	...	.73	...	.82	.88	...	...	.88
22-22.9	.84	.78	.79	.79	...	.77	...	.86	.92	...	...	.92
23-23.9	.88	.78	.82	.82	$.84	.80	...	.90	.95	...	...	.96
24-24.9	.91	.82	.85	.85	.88	.84	...	.94	.99	...	...	.99
25-25.9	.95	.86	.89	.89	.93	.88	...	.98	1.03	...	...	1.03
26-26.9	.98	.90	.92	.93	.98	.91	...	1.02	1.06	...	...	1.06
27-27.9	1.02	.95	.96	.97	1.03	.95	F.o.b.	1.06	1.10	...	$.91	1.10
28-28.9	1.06	.99	.99	1.01	1.07	.99	ship	1.10	1.14	...	.94	1.14
29-29.9	1.09	1.03	1.03	1.06	1.12	1.02	...	1.14	1.17	...	.98	1.17
30-30.9	...	1.08	1.07	1.10	1.17	1.06	...	1.18	1.21	...	1.02	1.21
31-31.9	...	1.12	1.11	1.14	1.22	1.09	...	1.20	...	...	1.06	1.24
32-32.9	...	1.16	1.14	1.18	1.27	1.13	...	1.22	...	...	1.09	1.27
33-33.9	...	1.20	1.18	1.22	1.32	1.17	$1.28	1.24	...	$1.19	1.13	...
34-34.9	...	1.25	1.22	1.26	1.37	1.20	1.32	1.26	...	1.23	1.17	...
35-35.9	...	1.29	1.25	1.30	1.42	...	1.35	1.28	...	1.27	1.20	...
36-36.9	...	1.33	1.29	1.34	1.46	...	1.39	1.30	...	1.31	1.24	...
37-37.9	...	1.37	1.32	1.38	1.51	...	1.43	1.32	...	1.35	1.28	...
38-38.9	...	1.42	1.36	1.42	1.56	...	...	...	...	1.39	1.31	...
39-39.9	...	...	1.40	1.47	1.61	...	...	...	...	1.43	1.35	...
40-40.9	...	...	1.43	1.51	1.66	...	...	...	...	...	1.39	...
41-41.9	...	...	...	1.55	...	...	...	...	...	...	1.43	...
42-42.9	...	...	...	1.59	...	...	...	...	...	...	1.46	...
43-43.9	...	...	...	1.63	...	...	...	...	...	...	1.50	...
44-44.9	...	...	...	1.67	...	...	...	...	...	...	1.54	...
45-45.9	...	...	...	1.71	...	...	...	...	...	...	1.57	...
46-46.9	...	...	...	1.75	...	...	...	...	...	...	1.61	...
48-48.9	...	...	...	...	...	...	...	...	...	...	1.65	...
47-47.9	...	...	...	...	...	...	...	...	...	...	1.68	...

*Posted by General Petroleum Corp. of California. †Union Oil Co.'s Brea Canyon schedule stops at $1.14 for 28° and over, and Lost Hills schedule stops at $1.32 for 37° and over. ‡Posted by Union Oil Co. Newhall, McKittrick, Kern River, Kern Front, and Round Mountain unchanged at flat price of 70 cents. Effective Sept. 1, 1939, Union Oil posted Santa Maria 14-14.9 at 42 cents, 15-15.9 at 44 cents, and 17 at 46 cents.

Effective Oct. 1, 1939, Standard Oil Co. of California began posting prices in Cole's Levee and Richfield Western fields as follows: 27°, $1.00; 28°, $1.03; 29°, 1.06; 30°, $1.09; 31°, $1.13; 32°, $1.16; 33°, $1.19; 34°, $1.22; 35°, $1.26; 36°, $1.29; 37°, $1.32; 38°, $1.35; 39°, $1.39; 40°, $1.42; 41°, $1.45; 42°, $1.48; 43°, $1.51; 44°, $1.55; 45°, $1.58; 46° and over, $1.61.

BEAUMONT AND WEST BEAUMONT, TEXAS

Gravity—	Jan. 1	Oct. 2
19-19.9	$0.79	$0.86
20-20.9	.82	.88
21-21.9	.85	.90
22-22.9	.88	.92
23-23.9	.91	.94
24-24.9	.94	.96
25-25.9	.97	.98
26-26.9	1.00	1.00
27-27.9	1.02	1.02
28-28.9	1.04	1.04
29-29.9	1.06	1.06
30-30.9	1.08	1.08
31-31.9	1.10	1.10
32-32.9	1.12	1.12
33-33.9	1.14	1.14
34-34.9	1.16	1.16
35-35.9	1.18	1.18
36-36.9	1.20	1.20
37-37.9	1.22	1.22
38-38.9	1.24	1.24
39-39.9	1.26	1.26
40 and over	1.28	1.28

Effective Oct. 2 by Humble Oil & Refining Co. By Stanolind Oil & Gas Co. in West Beaumont alone, Oct. 2, 1939. Gulf Refining Co. in West Beaumont, Oct. 2, 1939. By Magnolia Petroleum Co. in Beaumont, Oct. 2, 1939.

RACCOON BEND, TOMBALL, SATSUMA, TEXAS

Gravity—	Jan. 1
22-22.9	$0.95
23-23.9	.97
24-24.9	.99
25-25.9	1.01
26-26.9	1.03
27-27.9	1.05
28-28.9	1.07
Below 29	...
29-29.9	1.09
30-30.9	1.11
31-31.9	1.13
32-32.9	1.15
33-33.9	1.17
34-34.9	1.19
35-35.9	1.21
36-36.9	1.23
37-37.9	1.25
38-38.9	1.27
39-39.9	1.29
40 and over	1.31

Humble Oil & Refining Co., Magnolia Petroleum Co., in Tomball.

EAST TEXAS

	Jan. 1
East Texas	$1.10

Following a 20-cent cut by Sinclair on Aug. 10, companies restoring prices in East Texas following the Humble Oil & Refining Co. included De Soto Crude Oil Purchasing Co., Atlantic Refining Co., Tide Water Associated Oil Co., East Texas Refining Co., and Premier Oil Refining Co., all of which made their restored prices retroactive to Aug. 11; Stanolind Oil Purchasing Co., effective Aug. 12; Toronto Pipe Line Co. and Shell Oil Co., Inc., effective Aug. 29; Bell General Pipe Line Co., Arkansas Fuel Oil Co., and Cities Service Oil Co., effective Aug. 30. Shell and Cities Service went on a gravity basis in East Texas, starting at below 34°, 98 cents, with 2 cents added for each degree up to a top of $1.10 for 39 gravity and over. Sinclair Prairie's East Texas price started at below 33° at 96 cents, with a top of $1.10 for 39°. On Oct. 2 it posted a flat price of $1.10 for 39° and above.

Gravity—	Buena Vista Hills, Midway-Sunset, Lakeview West area, Coyote Hills Jan. 1	Buena Vista Hills, Midway-Sunset, Lakeview West area, Elk Hills Jan. 1	Lost Hills† Jan. 1	Alamitos Heights Jan. 1	Whittier, La Habra Jan.1	Rincon* Jan. 1	Dominguez Jan. 1	Wheeler Ridge Jan. 1	Coalinga Jan. 1	Santa Maria Oct. 14, '38**	Sept. 1
14-14.9	$.78	$.70	$.70	$.74	$.76	...	...	...	$.70	$.63	$.42
15-15.9	.78	.70	.70	.74	.76	...	...	...	.70	.65	.44
16-16.9	.78	.70	.70	.74	.76	...	...	...	.70	.68	.45
17-17.9	.78	.70	.70	.74	.76	...	...	...	.70	.70	.46
18-18.9	.78	.70	.70	.74	.76	...	...	...	.70	.70	...
19-19.9	.78	.74	.74	.74	.78	...	...	$.70	.71	.70	...
20-20.9	.80	.78	.78	.74	.82	...	...	.70	.72	.70	...
21-21.9	.84	.82	.82	.74	.85	...	...	.70	.74	...	...
22-22.9	.88	.87	.86	.74	.89	$.69	...	.72	.78	...	...
23-23.9	.92	.92	.90	.77	.93	.71	$.79	.76	.82	...	...
24-24.9	.96	.97	.94	.80	.96	.73	.81	.79	.86	...	...
25-25.9	1.00	1.01	.98	.82	...	.75	.83	.83	.90	...	...
26-26.9	1.03	1.06	1.02	.85	...	.77	.86	...	...	...	...
27-27.9	1.06	1.10	1.06	.88	...	.79	.88	...	...	...	...
28-28.9	1.10	1.15	1.10	.90	...	.81	.90	...	...	...	...
29-29.9	1.14	1.20	1.14	.93	...	.83	.93	...	...	...	...
30-30.9	1.17	1.25	1.18	.95	...	.85	.95	...	...	...	...
31-31.9	1.21	1.29	...	...	...	...	.97	...	...	...	...
32-32.9	1.25	1.34	...	...	...	...	1.00	...	...	...	...
33-33.9	1.28	1.38	...	...	...	...	...	...	...	...	...
34-34.9	1.32	...	...	...	...	...	...	...	...	...	...

Gravity—	Torrance Jan. 1	Seal Beach Jan. 1	Huntington Beach Jan. 1	Inglewood Jan. 1	Signal Hill Jan. 1	Santa Paula‡ Jan. 1	Orcutt‡ Jan. 1	Wilmington Jan. 1	Playa Del Rey Jan. 1
14-14.9	$.80	$.79	$.78	$.79	$.80	$.70	...	$.75	$.80
15-15.9	.80	.79	.78	.79	.80	.70	...	.75	.80
16-16.9	.80	.79	.78	.79	.80	.70	$.70	.75	.80
17-17.9	.80	.79	.78	.81	.80	.71	.70	.77	.80
18-18.9	.82	.79	.78	.84	.80	.73	.72	.79	.80
19-19.9	.85	.79	.82	.87	.82	.75	.74	.82	.84
20-20.9	.88	.79	.85	.90	.85	.77	.77	.85	.88
21-21.9	.91	.79	.89	.93	.88	.79	.80	.88	.93
22-22.9	.93	.82	.92	.96	.92	.82	.83	.92	.98
23-23.9	.96	.86	.96	.99	.95	.85	.86	.95	1.02
24-24.9	.99	.91	1.00	1.02	.99	.87	.88	.99	1.06
25-25.9	1.02	.95	1.03	1.05	1.03	.90	.91	1.03	1.11
26-26.9	1.05	1.00	1.07	1.09	1.06	.92	.93	1.06	1.16
27-27.9	...	1.05	1.11	1.12	1.10	.95	...	1.10	...
28-28.9	...	1.10	1.14	1.15	1.14	.97	...	1.14	...
29-29.9	...	1.15	1.18	1.18	1.17	.99	...	1.17	F.o.b.
30-30.9	...	1.19	1.22	1.21	1.21	1.01	...	1.21	pipe line
31-31.9	...	...	...	1.24	...	...	...	...	...
32-32.9	...	...	...	1.27	...	...	...	...	...
33-33.9	...	...	...	...	...	...	...	...	...

PENNSYLVANIA GRADE OIL

Posted by Tide Water Associated Oil Co. and New York Transit Co.:	Jan. 1	Jan. 21	Feb. 1	Mar. 6	Oct. 6	Nov. 1	Nov. 4	Dec. 1
Bradford, Pa.	$1.68	$1.80	....	$2.00	$2.25	$2.40	....	$2.50
Allegany, N. Y.	1.68	1.80	....	2.00	2.25	2.40	....	2.50
Posted by South Penn Oil Co.:								
Pennsylvania Grade oil in National Transit lines (Bradford field)	1.68	1.80	$1.88	2.00	2.25	2.40	....	2.50
Pennsylvania Grade oil in Southwest Pennsylvania lines	1.34	1.43	1.53	1.65	1.90	2.05	....	2.15
Pennsylvania Grade oil in Eureka Pipe Line lines	1.28	1.37	1.47	1.59	1.84	1.99	....	2.09
Pennsylvania Grade oil in Buckeye Pipe Line lines	1.18	1.30	1.45	1.55	1.80	1.02	....	2.05
Corning Grade oil in Buckeye Pipe Line Co. lines	.97	....	....	....	....	....	$1.12	1.12
Posted by Pennzoil Co.:								
Pennsylvania Grade oil in National Transit lines:								
Group A	1.61	1.73	1.83	1.95	2.20	2.35	....	2.45
Includes Cochran, Franklin, Hamilton, and Doolittle districts.								
Group B	1.60	1.72	1.82	1.94	2.19	2.34	....	2.44
Includes Titusville district.								
Group C	1.50	1.71	1.81	1.93	2.18	2.33	....	2.43
Includes Turkey and Tidioute districts.								
Group D	1.58	1.70	1.80	1.92	2.17	2.32	....	2.42
Includes Bear Creek and Porkey districts.								
Group E	1.56	1.68	1.78	1.90	2.15	2.30	....	2.40
Includes Eideneau, Bull Creek, Rough Run, Carbon, Dipner, Bredin, McJunkin, Jameson, Kenerdell, Emlenton, Tiona, Lacy, and Kinzau districts. Price depends on length of pipe line to plant at Oil City.								
Posted by Pure Oil Co.:								
Cabin Creek, W. Va.	1.28	1.37	1.47	1.59	1.84	1.99	....	2.09
Bradford Hollow, W. Va.	1.28	1.37	1.47	1.59	1.84	1.99	....	2.09
Kelly Creek, W. Va.	1.28	1.37	1.47	1.59	1.84	1.99	....	2.09

GULF COAST

Gravity—	Jan. 1*	Oct. 2†
Below 20	$0.79	$0.86
20-20.9	.82	.88
21-21.9	.85	.90
22-22.9	.88	.92
23-23.9	.91	.94
23-24.9	.94	.96
Below 25	...	...
25-25.9	.97	.98
26-26.9	1.00	1.00
27-27.9	1.02	1.02
28-28.9	1.04	1.04
Below 29	...	...
29-29.9	1.06	1.06
30-30.9	1.08	1.08
31-31.9	1.10	1.10
32-32.9	1.12	1.12
33-33.9	1.14	1.14
34-34.9	1.16	1.16
Below 35	...	...
35-35.9	1.18	1.18
36-36.9	1.20	1.20
37-37.9	1.22	1.22
38-38.9	1.24	1.24
39-39.9	1.26	1.26
40 and over	1.28	1.28

*Posted by Humble Oil & Refining Co., Pure Oil Co., starting at below 20°, 79 cents. Texas Co. schedule in coastal Texas and Louisiana, started at below 21°, 82 cents, with 3-cent differential up to 26-26.9° at $1 and then a 2-cent differential to top of $1.16 for 34° and above. Gulf Refining Co. schedule on Louisiana Gulf Coast started at below 18°, 76 cents, with 2-cent spread to 20-20.9° at 82 cents, then a 3-cent spread to 26-26.9° at $1, then 2-cent spread to a top of $1.16 for 34° and over. Sun Oil Co. met Humble prices stopping at 34° and over at $1.16.

Sinclair Prairie Aug. 10 ordered 20-cent reduction which was restored Aug. 31. †Effective Oct. 2, 1939, by Humble Oil & Refining Co. in Texas coast. By Sinclair Prairie Oil Marketing Co. in Texas coast, Oct. 3, 1939. By Texas Co. at $1.16 in Texas and Louisiana coast, Oct. 2, 1939, schedule stopping at 34° and over. By Sun Oil Co. in Texas and Louisiana coast, Oct. 2, 1939. By Gulf Refining Co. in Louisiana, Oct. 2, 1939, excepting that schedule stops at $1.16 for 34° and above. By Gulf Refining Co. in Texas, effective Nov. 1, 1939.

Conroe, Texas*	$1.27
Black Bayou and White Castle, La.	See note below
Gibson, La.†	$1.04
Garden Island, La.‡	1.24
Lafitte, La.‡	1.04
Cleveland, Tex.¶	1.14
Schwab, Polk County (Feb. 20, 1939)	1.00
Hardin, Tex.¶ (Jan. 1, 1939)	1.02
Hardin, Tex. (Sept. 14, 1939)	1.10
Tepetate, La.§	1.03
Villa Platte, La.§	1.03
Abbeville, La. (Jan 1, 1939)§	See note below
Bosco, La.¶	$0.93
Creole, La.¶	.96
Gueydan, Sweet Lake, and Louise, La.	See note below
Vinton, Edgerly, Starks, Hackberry, Timbalier Bay, Quarrantine Bay, and Grand Bay, La.**	...
Long Lake, Tex.**	$1.08
Segno and Wing**	See note belo
Livingston†	$1.10
Gibson, La.†	1.04

Thompson, by Gulf Refining Co., April 22, 1939, posted 70 cents for below 20°, 77 cents for 20-20.9°, and 3 cents differential to 26-26.9° and 2 cents differential to 40° and above, $1.23.

*Humble Oil & Refining Co. †Shell Oil Co., Inc. ‡Texas Co. §Continental Oil Co. ¶Pure Oil Co. ¶Magnolia Petroleum Co. **Gulf Refining Co.

Black Bayou and White Castle, starts at below 20° at 79 cents; 20-20.9°, 81 cents; 21-21.9°, 83 cents; then a 3-cent spread to 26-26.9°, 98 cents; then a 2-cent spread to 40° and over at $1.14. Abbeville starts at below 36°, 92 cents, 2-cent spread to 40° and over at $1.02. Gueydan, etc., starts below 20°, 79 cents, 3-cent spread to 26-26.9° at $1, and 2-cent spread to 40° and over at $1.28. Segno and Wink take Gulf Refining Co.'s Gulf Coast prices. Vinton, Edgerly, etc., schedule started at below 18°, 75 cents, 2-cent spread to 20-20.9° at 82 cents; then a 3-cent spread to 26-26.9° at $1; then a 2-cent spread to 34° and over at $1.16. Oct. 2, 1939, schedule changed to below 20°, 86 cents, 2-cent spread to 34° and above at $1.16. Schwab posted by Shell Oil Co., Inc. Evangeline posted by Standard of Louisiana.

Hackberry, East and West, effective Oct. 2, 1939, by Stanolind Oil & Gas Co. Below 20°, 86 cents, 2 cents added for each degree up to 34° and over at $1.16.

In the Bunkie and Eola pools in Louisiana, effective Oct. 23, 1939, by Standard Oil Co. of Louisiana, below 25°, 83 cents, 2 cents added for each degree up to 40° and over at $1.15.

Iowa, La., effective Oct. 11, 1938, by Shell Petroleum Corp. and on Apr. 1, 1939, by Shell Oil Co., Inc.: Below 18°, 75 cents; 18-18.9°, 77 cents; 2-cent to 21-21.9° at 83 cents; then a 3-cent spread to 26-26.9° at 98 cents; then a 2-cent spread to 34° above at $1.14.

GRAY COUNTY, TEXAS

Gravity—	Jan. 1
28-28.9	$0.72
29-29.9	.74
30-30.9	.76
31-31.9	.78
32-32.9	.80
33-33.9	.82
34-34.9	.84
Below 35	...
35-35.9	.86
36-36.9	.88
37-37.9	.90
38-38.9	.92
39-39.9	.94
40 and over	.96

Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Texas Co. quote "Panhandle sweet crude," beginning with 34-34.9° at 84 cents, with 2-cent spread to 40° and over at 96 cents, and "Panhandle sour crude," 79 cents for 34-34.9°, with a top of 91 cents for 40° and over. Magnolia Petroleum Co. met Humble prices throughout. Gulf Refining Co. quotes "Panhandle sweet crude" at below 29°, 72 cents, with a 2-cent spread, and top price of 96 cents for 40° and above, and "Panhandle sour crude" below 29°, 67 cents, with a top of 91 cents for 40° and above. Phillips Petroleum Co. schedule for sweet crude in Gray, Carson, and Hutchinson counties, starts at below 29°, 72 cents, with a spread of 2 cents up to 96 cents for 40° and over, Feb. 7, 1939. Sinclair cut Gray County 20 cents Aug. 10 and restored price Aug. 31.

ANAHUAC, DICKSON, MIRANDO, AND DUVAL, TEXAS

Gravity—	Jan. 1	Oct. 2
Below 20	$0.74	$0.81
20	.77	.83
21	.80	.85
22	.83	.87
23	.86	.89
24	.89	.91
25	.92	.93
26	.95	.95
27	.97	.97
27-27.9	.99	.99
28-28.9	1.01	1.01
29-29.9	1.03	1.03
30-30.9	1.05	1.05
31-31.9	1.07	1.07
32-32.9	1.09	1.09
33-33.9	1.11	1.11
34-34.9	1.13	1.13
35-35.9	1.15	1.15
36-36.9	1.17	1.17
37-37.9	1.19	1.19
38-38.9	1.21	1.21
39-39.9	1.23	1.23

Gulf Refining Co. in Anahuac, Humble Oil & Refining Co. in Anahuac, Dickinson and Mirando, Texas Co. in Duval but starting at below 21°, 77 cents, with a 2-cent spread up to and including 28° and above at 99 cents. Effective by Humble Oil & Refining Co. Oct. 2, 1939. By Sun Oil Co. in Anahuac, Oct. 2, 1939. By Gulf Refining Co. in Anahuac, Oct. 2, 1939. On Nov. 1, 1939, Gulf Refining Co. applied these prices to Anahuac, Hull (new), Pierce Junction, Orange, Thompson (deep). By Texas Co. in Duval and Mirando, stopping at 28-28.9 at $1.09. Continental Oil Co. in Mirando and Duval, Oct. 2, 1939.

REFUGIO, GRETA, SAXET AND TAFT COUNTIES, TEXAS

Gravity—	Jan. 1	Oct. 2
Below 20	$0.79	$0.91
20-20.9	.82	.93
21-21.9	.85	.95
22-22.9	.88	.97
23-23.9	.91	.99
24-24.9	.94	1.01
25-25.9	.97	1.03
26-26.9	1.00	1.05
27-27.9	1.02	1.07
28-28.9	1.04	1.09
29-29.9	1.06	1.11
30-30.9	1.08	1.13
31-31.9	1.10	1.15
32-32.9	1.12	1.17
33-33.9	1.14	1.19
34-34.9	1.16	1.21
35-35.9	1.18	1.23
36-36.9	1.20	1.25
37-37.9	1.22	1.27
38-38.9	1.24	1.29
39-39.9	1.26	1.31
40-40.9	1.28	1.33

Humble Oil & Refining Co., Texas Co., starting at below 21° at 81 cents and stopping at 28° and above at $1.04. Effective Oct. 2, 1939, by Humble Oil & Refining Co. and Continental Oil Co. By Texas Co. up to 28° and over at $1.09 Oct. 2, 1939. Atlantic adopted Humble price schedule Nov. 7, 1939, in Refugio and applied it also to Greta.

SOUTHWEST TEXAS

	Jan. 1
Salt Flat, Darst Creek, Hilbig, Carroll, Clark and Zoboroski	$0.96
Pettus*	1.29
Luling†	.87
Lytton Springs†	.99
Jim Wells County (Oct. 2, 1939)*	1.23
Darst Creek (Oct. 12, 1938)†	.96
Darst Creek and Bruner (Oct. 13, 1938)‡	.96

*Humble Oil & Refining Co. †Magnolia Petroleum Co. Pettus price adopted by Atlantic Crude Oil Purchasing Co. ‡Gulf Refining Co.

Government Wells posted by Sun Oil Co. starts at 20° at 77 cents, 3-cent spread to 24-24.9° at 89 cents.

Benavides, Heyser, Placedo by Republic Pipe Line Co. June 5, 1939, made top grade 35° and over $1.13. Jan. 1 posting went to 40° and over, $1.23.

FLOUR BLUFF, TEXAS

	Jan. 1
Flour Bluff	$1.23

ARTESIA AND MALJAMAR, N. M.

Gravity—	Jan. 1
28-28.9	$0.61
29-29.9	.63
Below 30	...
30-30.9	.65
31-31.9	.67
32-32.9	.69
33-33.9	.71
34-34.9	.73
Below 35	...
35-35.9	.75
36-36.9	.77
37-37.9	.79
38-38.9	.81
39-39.9	.83
40 and other	.85

Continental Oil Co. Standard posted 77 cents flat Jan. 1, 1939; Aug. 10, 57 cents flat, and Aug. 31, 77 cents flat.

ROCKY MOUNTAIN STATES

Dry Creek, Wyo. (Oct. 11, 1938)*	$0.92
Elk Basin, Wyo. (Oct. 11, 1938)*†	.90
Grass Creek, light, Wyo. (Oct. 11, 1938)*†	.90
Grass Creek, heavy (Oct. 11, 1938)†	.40
Lance Creek, Wyo. (Oct. 11, 1938)*	.77
Rock Creek, Wyo. (Oct. 11, 1938)	1.00
Iles, light, Colo. (Oct. 11, 1938)†	.98
Iles, heavy, Colo. (Oct. 11, 1938)†	.92
Dutton Creek, Wyo. (Oct. 11, 1938)†	See note below
Frannie, light, Wyo. (Oct. 11, 1938)†	$0.55
Frannie, heavy, Wyo. (Oct. 11 1938)†	.42
Hamilton dome, Wyo. (Oct. 11, 1938)†	.35
Midway, Wyo. (Oct. 11, 1938)†	See note below
Salt Creek Tensleep Crude, Wyo. (Oct. 11, 1938)†	$0.646
Salt Creek (Oct. 11, 1938)	See note below
Canon City, Colo. (Oct. 11, 1938)‡	$0.90
Florence, Colo. (Oct. 11, 1938)‡	.90
Cat Creek, Mont. (Oct. 11, 1938)‡	1.10
Big Muddy, Wyo. (Oct. 11, 1938)‡	.98
Lance Creek, Wyo. (Oct. 11, 1938)‡	.77
Lea County, New Mexico	See West Texas gravity schedule‡
Aratesia, Jackson, and Maljamar	See gravity table‡
Fort Collins and Wellington, Colo.	See note below
Eddy County, New Mexico (Oct. 11, 1938)§	$0.77

*Ohio Oil Co. †Stanolind Oil & Gas Co. ‡Continental Oil Co. §Sinclair Prairie Oil Marketing Co.

Dutton Creek and Salt Creek Tensleep crudes start at below 29°, 86 cents, 2 cents spread up to 40° and over at $1.10. Salt Creek crude, excepting Tensleep, takes Standard Oil Co. of Indiana's Oklahoma-Kansas prices. Stanolind Oil & Gas Co., effective Oct. 11, discontinued posting prices in Greybull-Torchlight, Wyoming, and Hogback and Hospah, New Mexico. In Fort Collins and Wellington, Colorado, effective Oct. 11, 1938, by Continental Oil Co. 28-28.9°, 81 cents, with 2 cents added for each degree up to 40° and over at $1.05.

CANADA

ONTARIO
By Imperial Oil, Ltd.

		Nov. 6
Petrolia	$1.90	$2.10
Oil Springs	1.97	2.07
Bothwell		2.10
TURNER VALLEY		
Clear naphtha and discolored naphtha, 65° and higher		$2.14
Discolored naphtha and crude oil, 40-40.9°		1.14
Increasing 2 cents for each degree gravity with top price for 64-64.9°		1.62

These prices f.o.b. producers' field tankage.

CARSON AND HUTCHINSON COUNTIES, TEX.

Gravity—	Jan. 1
28-28.9	$.67
29-29.9	.69
30-30.9	.71
31-31.9	.73
32-32.9	.75
33-33.9	.77
34-34.9	.79
Below 35	...
35-35.9	.81
36-36.9	.83
37-37.9	.85
38-38.9	.87
39-39.9	.89
40 and over	.91

Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Texas Co. quoted "Panhandle sweet crude" at 34-34.9°, 84 cents, with a top of 96 cents for 40°, and "Panhandle sour crude" at 34-34.9°, 79 cents, with a top of 91 cents for 40° and over. Gulf Refining Co. quoted "Panhandle sweet crude" at below 29°, 72 cents, with a top of 96 cents for 40° and over and "Panhandle sour crude" at below 29°, 67 cents, with a top of 91 cents for 40° and above. Phillips Petroleum Co. schedule for sour crude in Carson, Moore, and Hutchinson counties, started at below 29° at 67 cents, with a spread of 2 cents up to 91 cents for 40° and over, effective February 7, 1939.

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Major Pipe-Line Projects Were Feature of 1939 Construction

CONSTRUCTION of pipe lines has been of a magnitude in 1939 which made it the most important year the industry had seen, in nearly a decade, for the expansion of facilities for transporting crude oil, gasoline, and natural gas.

Significant projects which had been entirely completed as well as those which were in the process of construction or which were getting under way toward the end of 1939, represent a total of more than 5,000 miles. A distinctive feature of the year has been the extensive growth of lines for the transportation of gasoline, butane, and refined products of various grades. The largest projects completed last year were crude-oil lines in the Illinois basin and Rocky Mountain areas.

Natural-gas transmission systems have been enlarged and extended by several projects in northern and southern states, each entailing between 100 and 250 mils of line.

The year of 1939 will be remembered as the period when the first pipe line was built across the Continental Divide and when the first two major pipe-line projects were completed in South America. The year closed with an unusual amount of looping being done on lines of all kinds in the middle western section of the United States; furthermore, as the year ended construction was getting under way for a long gasoline line serving territory in Florida, Georgia, and Tennessee.

Southeastern States

The project just referred to is the 450-mile gasoline pipe line being built as a turn-key job for Gulf and Pure interests in order to move products of these two refining organizations from a marine terminal at Port St. Joe, Fla., to marketing territory in southeastern states.

United Gas Pipe Line Co. has recently completed a 125-mile gas trunk line from Monroe La., to Jackson, Miss., in addition to a program for enlarging gathering facilities in Louisiana.

The great increases in oil production in the Illinois basin has stimulated the building of several large lines. Magnolia Pipe Line Co. built a 357-mile line for Socony-Vacuum Oil Co., Inc., from East St. Louis to Lima, Ohio. Texas-Empire Pipe Line Co. built a 110-mile line from the Salem field to the Heyworth station on the company's trunk line from the Mid-Continent area to East Chicago. Later a looping program involving the laying of 80 miles of pipe was started; this work is now going on.

Sohio Pipe Line Co. was organized in 1939 to operate pipe-line facilities of the parent organization including lines purchased from Tide Water Pipe Line Co. in July. To expedite the movement of oil from the Illinois basin to various outlets, Sohio has built a number of lines less than 100 miles in length. Illana Corp. built a 252-mile gasoline line from Dupo, Ill., to East Chicago for Phillips Petroleum Co. Although this line does not handle products made from Illinois crude, an economic situation resulting from Illinois production activity justified this project.

Other important gasoline lines built in northern territory are Standard Oil Co. (Indiana) 180-mile line from Sugar Creek, Mo., to Council Bluffs, Iowa, and Cimarron Valley Pipe Line Co. (Champlin Refining Co.) 280-mile line from Superior, Neb., to Sioux City, Iowa. The largest natural-gas pipe-line project of the year, also in northern territory, was built by Northern Natural Gas Co. from Sioux City, Iowa, to Minneapolis, Minn., a distance of 240 miles.

South America

The first long 16-in. crude-oil line was completed last summer by Mene Grande Oil Co. from the port of Guanta to the Oficina oil fields of Venezuela, 100 miles away. Traversing mountainous country which presented great difficulties, South American Gulf Oil Co. completed a 270-mile crude-oil line from the Barco concession to the marine terminal at Covenas on the coast of Columbia.

Rocky Mountain States

The Rocky Mountain area took the lead in 1939 in oil pipe-line construction with the laying of Utah Oil Refining Co.'s line from Fort Laramie, Wyoming, to Salt Lake City, a distance of 442 miles.

In July, El Paso Natural Gas Co. enlarged its system in Southeast New Mexico by laying 62 miles of 16-in. line.

Prospective construction in 1940, still in preliminary stage, is a 250-mile 6-in. pipe line from the Cut Bank field in northern Montana to Spokane, Wash. This project is being fostered by the Inland Empire Refineries, Inc., of Spokane, which operates on Montana crude that is now shipped by rail.

West Texas

During the year two more lines were constructed from the Wasson-Bennett area to Hobbs and as the year closed a third and 93-mile line was being laid southeast to Big Spring. An outlet for the northernmost fields, Slaughter and Duggan, was provided by Plains Pipe Line Co. which constructed a 34-mile line to Motor Fuels Corp.'s new refinery at Levelland. This line was of 4-in. pipe while the two Wasson-Hobbs lines (built by Shell Pipe Line Co. and Aloco Pipe Line Co.) were of 6-in. The 93-mile line now under construction is of 6-in. pipe and is being built by the newly formed Basin Pipe Line Co. of Big Spring. Possibly laterals may be laid to the Seminole field and the new Cedar Lake field.

In the latter part of the year Gulf Pipe Line Co. started enlarging the capacity of its trunk line leading from West Texas. When the work is completed capacity will be increased from 55,000 to 61,000 bbl daily; the program includes the addition of extra pumping units at eight booster stations and the laying of short 10-in. loops on the discharge sides of each station.

Pipe-Line Activity in New Mexico

Pipe-line construction in Southeast New Mexico was the most extensive of recent years. Most of the work centered around Texas-New Mexico Pipe Line Co. converting its gathering system to gravity flow and enlarging the capacity of its Lea and Eddy county lines. In June the company laid a 16-mile, 5-in. line from its Monument station to the new South Lovington field to give it a pipe-line outlet. Texas-New Mexico laid some 21 miles of 10-in. and some 39 miles of 14-in. pipe. Later it laid a 15-mile, 6-in. line from its Grayburg station south to Loco Hills field in Eddy County, giving the field an outlet to the Gulf Coast.

North Texas

By laying a 66-mile, 6-in. line from its main-line station at Hensley in Jack County, Texas, to the K.M.A. field, Sinclair Refining Co. greatly aided operators in that field during the past year. The line also aided development in the nearby Hull-Silk field of northern Archer County. At the opening of this year the company announced it was to loop its 6-in. carrier with an 8-in. line.

In May, Sinclair also laid a 15-mile line from the Walnut Bend field of Cooke County to near Gainesville where it connected with the company's 8-in. trunk line to Fort Worth. In September the company connected to wells in the Rogers & Rogers field in Montague County to give that area its first outlet. The new Voth field in northern Cooke County likewise received outlets later in the year; one to the Muenster refinery and one to loading racks at Muenster where the oil was shipped to a refinery at Gainesville. The new deep producing area in eastern Wilbarger County opened by Consolidated Oil Co. and others on the Waggoner ranch, also was given a pipe-line outlet in October.

Gulf Coast and Southwest Texas

The largest pipe-line project completed in the Gulf Coast and Southwest Texas district was the Magnolia Pipe Line Co.'s 85-mile 8-in. welded oil line from the West Ranch field, Jackson County, to the main-line station near Sealy in Waller County.

Corpus-Rosa Pipe Line Co. completed a 32-mile 6-in. welded oil line from the La Rosa field in Refugio County to the Terminal Refining Co. at Corpus Christi.

Humble Pipe Line Co. completed 50 miles of 8-in. oil line from its Benavides station in Duval County to the Kelsey field in southeastern Jim Hogg and southwestern Brooks County.

Magnolia Petroleum Co. completed a combination 4½-in. and 5-in. gasoline line from Corpus Christi to San Antonio, a distance of 150 miles.

Valley Pipe Line Co. extended its system in the Rio Grande Valley district to approximately 55 miles.

M. A. R. Pipe Line Co. completed 35 miles of 6⅝-in. welded oil line from the Ben Bolt field in Jim Wells County to the Saxet field in Nueces County.

Southern Pipe Line Corp. laid 23 miles of 6⅝-in. oil line from the Richard King field to the company's pump station at Saxet.

Amsco Pipe Line Co. completed 16 miles of 4-in. oil line from the Adami field in Webb County to the S.R.C. field in Duval County.

East Texas

Major pipe-line construction project of the year in eastern Texas was the laying of a 191-mile natural-gasoline and butane carrier from the East Texas field to Beaumont. The carrier, constructed by Magnolia Pipe Line Co., is connected to five natural-gasoline plants. The new line is mostly 4-in., but some 5 and 8-in. pipe was used. Capacity is 4,000 bbl. daily.

Stanolind Pipe Line Co. constructed a 35-mile, 6-in. and 8-in. extension line from its Bullock station, near Mexia, to the Cayuga field in Anderson and Henderson counties. In the spring Humble Pipe Line Co. laid a 26-mile, 4-in. line from its Fairfield station to the Navarro Crossing field of Houston County to give that field its first pipe-line outlet.

Annual Review

EASTERN TEXAS WILDCATTING IN 1939 HAD NO IMPORTANT RESULTS

By R. MARNE SANFORD

THE comparatively meager results of the past year's wildcatting in eastern Texas does not truly reveal the intensity of the district's exploratory campaigns, both Woodbine sand and lower Trinity.. Five pools were opened in the district in 1939, three of which were Woodbine-sand areas, and located one each in Henderson, Leon and Navarro counties; one was a shallow Strawn pool in northwestern Denton County, and the fifth a 5,600-ft. Glen Rose distillate pool in Limestone County.

Woodbine-sand wildcatting held the spotlight during the early part of the year, but closely following the starting of two deep wildcats (both of which later proved to be failures) at Opelika in Henderson County, a deep lower Marine Trinity wildcat campaign, the most extensive ever undertaken in the district, was started and immediately spread to almost every county in the area. By the latter part of the summer there were some 12 deep wildcats either rigging up or actively drilling. With deep exploratory holes drilled in various parts of Limestone, Hunt, Houston, Smith

EASTERN TEXAS DISCOVERIES IN 1939

County, location, and discovery well—	Date	Depth	Gage	Formation	No. of wells	Name of pool	Remarks
Henderson—J. T. Childress Sur., 3½ miles NE Flag Lake; Richards & Holloway and Tyler & Smith's No. 1 Rowe & Baker	March 31	3,140-47	15 bbl./day	Woodbine sand	2	Rowe & Baker pool	
Leon—H. W. Subblett Sur., 4 miles NW of Navarro Crossing field; Humble Oil & Ref. Co.'s No. 1 Ed Swift	April 7	5,841½-42½	105 bbl./day	Woodbine sand	4	Leon extension area	Later proven extension to Navarro Crossing pool, of Houston County, on the east.
Navarro—A. C. Kyser Sur., Topaz Oil Co.'s No. 1 Trammell	Sept. 10	2,992-3,008	603 bbl./24 hr.	Woodbine sand	4	Bazette	May prove to be part of Flag Lake.
Limestone—W. G. McKinsey Sur., 4 miles NW Thornton, Murray Samuell and Zephyr Oil Co.'s No. 1 Cannon Barron	Nov. 29	5,584-5,611	13,000,000 cu. ft. gas; 85 bbl. distillate	Glen Rose of lower Trinity	1		
Denton—L. Moore Sur., NW part of county, Jones Drlg. Co.'s No. 1 Armstrong	Dec. 14	1,608-32	100 bbl./24 hr.	Strawn	1		

EAST CENTRAL TEXAS

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
CORSICANA:													
Daily average	415	416	437	433	404	401	414	423	416	406	421	414	
Month	12,869	11,645	13,559	12,981	12,512	12,030	12,847	13,118	12,482	12,576	12,631	12,834	152,084
CURRIE:													
Daily average	107	100	110	109	101	99	108	104	107	101	106	105	
Month	3,332	2,803	3,396	3,284	3,341	2,970	3,381	3,215	3,205	3,117	3,192	3,255	38,491
FLAG LAKE:													
Daily average	543	566	581	489	453	449	348	251	339	351	353	346	
Month	16,847	15,860	18,002	14,660	14,051	13,470	10,796	7,780	10,171	10,867	10,588	10,726	153,818
MEXIA:													
Daily average	1,729	1,677	1,706	1,682	1,692	1,686	1,688	1,630	1,616	1,619	1,660	1,638	
Month	53,605	46,953	52,887	50,461	52,457	50,585	52,317	50,524	48,471	50,182	49,810	50,778	609,030
POWELL:													
Daily average	1,979	1,896	1,892	1,925	1,891	1,876	1,822	1,856	1,873	1,857	1,915	1,886	
Month	61,337	53,086	58,651	57,762	58,618	56,272	56,486	57,543	56,195	57,573	57,445	58,466	689,434
SULPHUR BLUFF:													
Daily average	4,604	4,432	4,607	5,143	4,184	4,066	3,845	2,093	3,545	4,153	3,896	3,728	
Month	142,714	124,107	142,827	154,286	129,689	121,975	119,204	64,874	106,358	128,728	116,888	115,568	1,467,218
VAN:													
Daily average	13,261	12,708	13,262	14,870	16,075	14,716	17,718	9,260	16,717	15,382	16,590	16,606	
Month	411,079	355,811	411,115	446,093	498,325	441,472	549,256	287,053	501,516	476,852	497,711	514,786	5,391,069
BOGGY CREEK:													
Daily average	288	249	276	175	305	300	322	278	285	307	334	304	
Month	8,925	6,985	8,544	8,256	9,466	9,007	9,978	8,607	8,556	9,508	10,034	9,424	107,290
CAYUGA:													
Daily average	3,431	5,681	7,795	8,782	9,164	9,615	12,423	6,924	11,925	11,190	10,828	11,843	
Month	106,349	159,061	241,651	263,470	284,085	288,450	385,103	214,656	357,746	346,881	324,826	367,133	3,339,411
LONG LAKE:													
Daily average	2,252	2,211	2,329	2,620	2,458	2,307	2,384	1,370	2,332	2,195	2,246	2,303	
Month	69,816	61,895	72,205	78,607	76,183	69,210	73,889	42,483	69,972	68,039	67,371	71,393	821,063
NAVARRO CROSSING:													
Daily average	287	412	519	678	552	540	518	295	578	584	628	560	
Month	8,901	11,550	16,093	20,335	17,120	16,212	16,047	9,131	17,334	18,108	18,829	17,360	187,020
RODESSA:													
Daily average	29,110	29,306	29,295	28,547	27,893	29,005	27,116	16,345	26,665	25,810	25,666	26,530	
Month	902,408	820,555	908,140	856,413	864,682	870,142	840,599	506,695	799,941	800,108	769,985	822,430	9,762,098
TALCO:													
Daily average	31,040	29,887	30,760	33,068	27,893	27,600	25,796	13,939	24,382	22,625	25,893	24,267	
Month	962,232	836,841	953,577	992,042	858,623	828,012	799,665	432,115	731,471	701,378	776,805	752,277	9,625,038
TRINITY:													
Daily average	557	559	572	640	445	445	431	266	440	425	396	432	
Month	17,274	15,651	17,730	19,211	13,786	13,355	13,367	8,260	13,191	13,178	11,882	13,392	170,277
MISCELLANEOUS:													
Daily average	650	580	615	672	575	565	482	522	604	690	681	773	
Month	20,136	16,233	19,059	20,148	17,826	16,962	14,933	16,174	18,124	20,744	20,928	23,954	224,721
Daily average	90,252	90,680	94,756	99,934	93,896	93,671	95,415	55,556	91,792	87,672	91,614	91,734	89,691
Total 1939	2,797,824	2,539,036	2,937,436	2,998,009	2,910,764	2,810,124	2,957,868	1,722,228	2,753,748	2,717,839	2,748,425	2,843,756	32,737,073
Total 1938	2,661,018	2,510,176	3,087,336	3,040,676	2,957,498	2,787,638	3,010,685	3,072,061	2,688,595	2,814,962	2,723,509	2,935,242	34,289,396
Total 1937	3,269,687	3,057,810	3,760,600	3,531,526	3,900,811	3,782,195	3,798,162	4,167,853	3,446,920	3,370,061	2,950,685	2,950,713	41,987,023
Total 1936	1,379,138	1,383,241	1,513,836	1,529,814	1,636,711	1,592,121	1,764,106	1,930,376	1,976,086	2,298,220	2,208,872	2,738,771	21,941,292
Total 1935	1,598,825	1,439,129	1,597,656	1,463,460	1,480,095	1,444,800	1,521,598	1,441,482	1,444,861	1,436,003	1,397,957	1,546,794	17,812,660

Miscellaneous pools, not listed above, and their total production in barrels in 1939 were Bolivar, 2,045; South Bosque, 3,309; Buffalo, 18,129; Collinsville, 7,637; Lott, 7,197; Negro Creek, 321; Opelika, 7,125; Pottsboro, 1,345; Rice, 126; Percilla, 5,499; Potter, 29,002; Rusk, 4,621; Wascom, 21,788; Nacogdoches, 2,196; Rowe-Baker, 3,102; Richland, 5,872; Wortham, 29,144; Ginter, 8,263; Grapeland, 27,377; Huntington, 7,030; Lone Star, 9,730; Panola, 7,512; Bazette, 8,967; Marion County (shallow), 7,385; total, 224,721.

EAST TEXAS

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
JOINER:													
Daily average	122,689	118,777	123,038	137,929	133,577	120,240	121,377	65,009	128,349	146,250	146,900	146,600	
Month	3,803,359	3,325,756	3,814,178	4,137,870	4,140,887	3,607,200	3,762,694	2,015,264	3,850,490	4,533,750	4,407,000	4,544,600	45,943,048
KILGORE:													
Daily average	117,705	113,952	118,040	132,326	128,151	115,355	119,846	64,595	127,146	149,900	150,800	150,600	
Month	3,648,855	3,190,656	3,659,240	3,969,780	3,972,681	3,460,650	3,715,216	2,002,446	3,814,391	4,646,900	4,524,000	4,668,600	45,273,415
LONGVIEW:													
Daily average	143,011	138,449	143,417	160,773	155,701	140,155	141,670	73,548	145,597	196,300	197,500	196,550	
Month	4,433,341	3,876,572	4,445,927	4,823,190	4,826,731	4,204,650	4,391,781	2,279,983	4,367,901	6,085,300	5,925,000	6,093,050	55,753,426
Daily average	383,405	371,178	384,495	431,028	417,429	375,750	382,893	203,151	401,093	492,450	495,200	493,750	402,657
Total 1939	11,885,555	10,392,984	11,919,345	12,930,840	12,940,299	11,272,500	11,869,691	6,297,693	12,032,782	15,265,950	14,856,000	15,306,250	146,969,889
Total 1938	14,165,729	11,839,660	13,440,422	12,973,710	11,543,935	10,914,000	13,256,158	13,753,770	11,244,180	11,802,599	11,347,380	12,036,835	148,318,837
Total 1937	13,958,184	12,649,536	14,301,075	13,889,180	14,407,994	14,112,420	14,542,968	14,629,272	14,305,200	14,933,072	14,001,780	13,507,072	169,237,733
Total 1936	14,238,858	13,743,390	14,409,358	14,328,360	14,524,368	13,821,780	13,084,004	13,229,980	12,953,268	13,486,434	13,171,740	13,797,333	164,788,873

and Camp counties. The only deep area officially opened to Trinity production during the year was Grosebeck, in Limestone County, discovered by Murray Samuell and Zephyr Oil Co.'s No. 1 Cannon Barron. The discovery was in the W. G. McKinsey Survey, 4 miles northwest of Thornton. After drilling to a total depth of 6,051 ft., topping the Paluxy at 4,033 ft., the Glen Rose at 4,145 ft., the Pettit at 5,591 ft. and the Travis Peak at 5,715 ft., the hole was plugged back to the Glen Rose and completed in a pay from 5,584 to 5,611 ft. for 13,700,000 cu. ft. of gas and 5 to 8 bbl. of distillate per 1,000,000 cu. ft. of gas. After obtaining a market for the gas with Lone Star Gas Co., the discovery operators, together with Lone Star, started the second test. This gas-distillate area is the first opened in the Glen Rose pay on the east side of the Balcones-Mexia fault system.

The results of Woodbine-sand exploration were very few, with no fields of importance opened. In April Humble Oil & Refining Co. completed a wildcat in Leon County, across the Trinity River from the Navarro Crossing field in Houston County. Subsequent drilling proved the area part of the Navarro Crossing field.

Early in September the Topaz Oil Co. completed No. 1 Trammel, A. C. Kyser Survey, across the Trinity River from, and south of the Flag Lake pool, in Henderson County, to open a new producing spot in northern Navarro County. A drilling campaign was immediately launched by the company and as the year closed there were four wells in the pool and it had been definitely established as part of the original Flag Lake field. Production is from the Woodbine sand at 3,000 ft. A thicker pay section was found than in the Flag Lake field proper and the gas volume is not large enough to hamper completion.

East Texas Field on Decline

After leading the East Texas oil activity for more than 9 years, the great East Texas field is definitely on the decline. The plugging of depleted wells exceeds the number of new completions and has done so for the past 4 months. The peak was reached in August when there were 26,061 wells listed as producing in the field. As of the start of 1940 there were 25,991 producers in the field according to Railroad Commission reports. An average of about six wells were plugged each week during the last 13 weeks of 1939.

EAST TEXAS

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas
Anderson	33	2,507	5	12
Angelina	6	13	2	0
Camp	2	0	2	0
Cherokee	2	0	2	0
Collins	1	0	1	0
Dallas	1	0	1	0
Ellis	3	0	3	0
Falls	5	33	4	0
Franklin	20	5,147	1	0
Freestone	17	788	9	3
Grayson	11	8	10	0
Gregg	214	10,547	3	0
Henderson	19	847	12	1
Hill	2	0	2	0
Houston	28	1,794	7	5
Hopkins	1	0	1	0
Hunt	5	0	5	0
Kaufman	8	0	8	0
Lamar	1	0	1	0
Leon	11	232	4	4
Limestone	12	0	11	1
McLennan	5	0	5	0
Morris	1	0	1	0
Nacogdoches	3	0	3	0
Navarro	11	1,451	6	1
Rains	1	0	1	0
Red River	4	0	4	0
Rusk	132	5,865	6	0
Smith	18	504	6	0
Titus	21	5,531	2	0
Trinity	3	0	3	0
Upshur	19	681	3	0
Van Zandt	8	36	7	0
Wood	1	0	1	0
Total 1939	629	35,984	142	27

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	116	6,154	12	1
February	61	3,857	4	4
March	33	1,295	11	1
April	39	2,331	14	1
May	65	3,239	12	6
June	51	3,491	8	2
July	49	1,778	20	1
August	45	1,832	20	0
September	45	2,988	11	3
October	55	3,750	15	3
November	37	3,945	6	3
December	33	1,324	9	2
Total 1939	629	35,984	142	27
Total 1938	1,960	116,213	165	26
Difference	1,331	80,229	23	1

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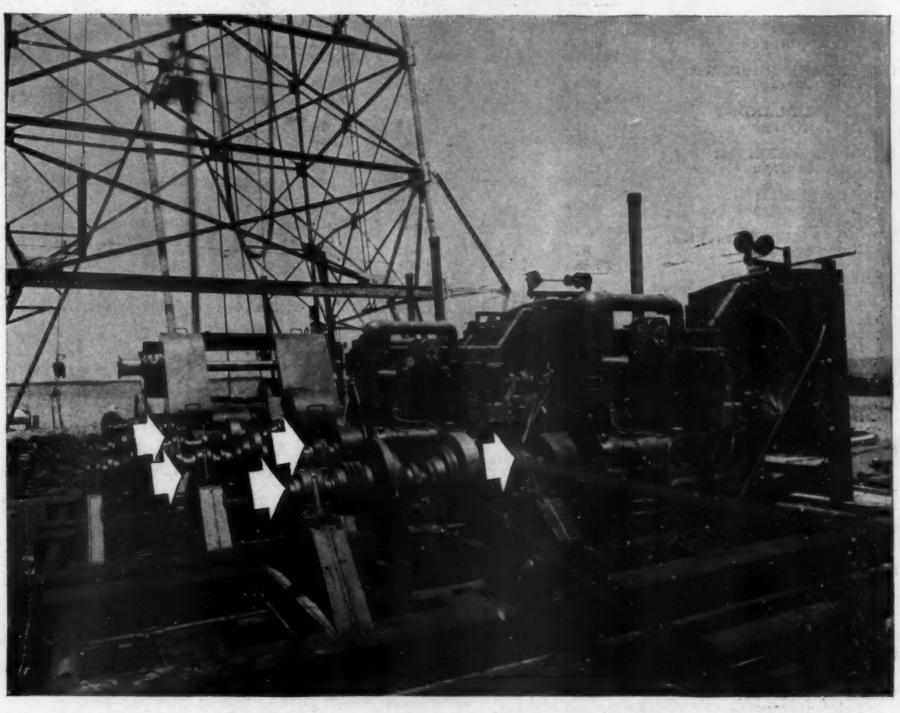

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Annual Review

MICHIGAN CRUDE PRODUCTION ROSE TO AN ALL TIME HIGH IN 1939

By OTTO C. PRESSPRICH

MICHIGAN crude-oil production continued to increase in 1939 to an all-time high of 23,566,406 bbl., a rise of 4,427,474 bbl. over last year. The state's reserve position was downward despite a record-breaking year in the drilling branch of the industry. Tests drilled totaled 1,392 as against 1,000 for last year, and more reserve oil was discovered, but not enough to make up for the high production. Reserves discovered during the year totaled 20,338,000 bbl., an increase of over 3,000,000 bbl. over 1938.

Success of the drilling campaign was normal, although the number of fields discovered totaled only 10 and two of these were later proven to be one field. The Wise field in Isabella County also got a deeper pay zone. Seven of the state's fields received noticeable extensions, most of these being 1938 discoveries that lacked complete development at the start of the year. Most of the work was concentrated in the southwestern part of the state, where shallow Traverse-lime production attracted many operators. The Van Horn field in Clare County continued its orderly development started in 1938 and added some good wells.

The outstanding strike of the year was the Walker-Wyoming-Tallmadge field in Kent County. The pool was opened by Smith Petroleum Co.'s No. 1 Whalen, SW SE SW Section 32-7n-12w, on February 8, 1939, the well making 400 bbl. from the Traverse lime at 1,822-27½ ft. A real strike was evident following the completion of the Swanson Consolidated Oil Co.'s No. 1 Fletcher, SE SW SE Section 32-7n-13w, Wyoming Township, for 3,000 bbl. daily from the same formation. By the close of the year more than 300 tests had been drilled in the surrounding area and 294 oil wells resulted. Production in the area mounted rapidly.

The year also saw the revival of both the Salem and New Salem fields in Allegan County. Continued success

MICHIGAN

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
PORTER-YOST:													
Daily average	5,860	5,835	5,979	5,682	5,682	5,448	5,256	5,208	5,008	4,912	4,865	4,812	
Month	181,660	163,380	185,349	170,460	176,142	163,440	162,936	161,448	150,240	152,272	145,950	149,172	1,962,449
GREENDALE-CHIPPEWA:													
Daily average	1,541	1,596	1,580	1,539	1,602	1,530	1,468	1,395	1,377	1,291	1,381	1,306	
Month	47,771	44,688	48,980	46,170	49,662	45,900	45,508	43,245	41,310	40,021	41,430	40,486	535,171
GENEVA-MIDLAND:													
Daily average	18	18	17	15	12	14	13	12	.....	10	14	12	
Month	558	504	527	450	372	420	403	372	.....	310	420	372	4,708
SHERMAN-ISABELLA:													
Daily average	1,703	1,426	1,446	1,246	1,112	982	971	1,062	1,102	1,113	1,076	1,082	
Month	52,793	39,928	44,826	37,380	34,472	29,460	30,101	32,922	33,060	34,503	32,280	33,542	435,267
WISE-ISABELLA:													
Daily average	194	215	391	568	741	731	605	704	913	1,083	1,247	1,193	
Month	6,014	6,020	12,121	17,040	22,971	21,930	18,755	21,824	27,390	33,573	37,410	36,983	262,031
VERNON-LEATON-DENVER:													
Daily average	835	858	961	902	900	818	837	782	804	747	859	840	
Month	25,885	24,024	29,791	27,060	27,900	24,540	25,947	24,242	24,120	23,157	25,770	26,040	308,476
FREEMAN-REDDING:													
Daily average	8,360	10,897	12,614	13,773	14,134	13,345	14,462	14,003	13,261	14,579	15,224	15,964	
Month	259,160	305,116	391,034	413,190	438,154	400,350	448,322	434,093	397,830	451,949	456,720	494,884	4,890,802
GRANT-CLARE:													
Daily average	4	.....	.....	7	7	7	7	.....	.....	16	9	10	
Month	124	.....	.....	210	217	210	217	.....	.....	496	270	310	2,054
BEAVERTON:													
Daily average	162	186	201	160	141	170	153	142	157	127	132	129	
Month	5,022	5,208	6,231	4,800	4,371	5,100	4,743	4,402	4,710	3,937	3,960	3,999	56,483
EDENVILLE:													
Daily average	1,611	1,333	1,115	1,060	1,000	841	719	657	576	544	473	466	
Month	49,941	37,324	34,565	31,800	31,000	25,230	22,289	20,367	17,280	16,864	14,190	14,446	315,296
BENTLEY-GLADWIN:													
Daily average	766	624	561	570	496	476	480	452	466	433	452	457	
Month	23,746	17,472	17,391	17,100	15,376	14,280	14,880	14,012	13,980	13,423	13,560	14,167	189,387
BUCKEYE-WICKLUND-OARD:													
Daily average	9,796	9,376	8,848	8,384	7,641	6,922	6,576	6,003	5,049	4,875	4,272	4,092	
Month	303,676	262,528	274,288	251,520	236,871	207,660	203,856	186,093	151,470	151,125	128,160	126,852	2,484,099
OGEMAW:													
Daily average	2,953	2,796	2,937	1,524	1,712	1,788	1,585	1,533	1,604	1,189	1,487	1,230	
Month	91,543	78,288	91,047	45,720	53,072	53,640	49,135	47,523	48,120	36,859	44,610	38,130	677,687
SECORD-GLADWIN:													
Daily average	.....	.....	28	14	.....	.....	15	8	7	12	7	6	
Month	.....	.....	868	420	.....	.....	465	248	210	372	210	186	2,979
ADAMS-ARENAC:													
Daily average	135	149	178	167	159	157	127	123	135	135	163	158	
Month	4,185	4,172	5,518	5,010	4,929	4,710	3,937	3,813	4,050	4,185	4,890	4,898	54,297
CLAYTON-ARENAC:													
Daily average	2,617	2,381	2,004	2,546	2,147	1,842	1,519	1,570	1,595	1,227	1,782	1,510	
Month	81,127	66,668	62,124	76,380	66,557	55,260	47,089	48,670	47,850	38,037	53,460	46,810	690,032
TUSCOLA COUNTY:													
Daily average	.....	.....	.....	8	2	2	3	4	20	150	67	15	
Month	.....	.....	.....	240	62	60	93	124	600	4,650	2,010	465	8,304
SAGINAW AREA:													
Daily average	79	99	103	77	76	106	95	78	59	84	93	86	
Month	2,449	2,772	3,193	2,310	2,356	3,180	2,945	2,418	1,770	2,604	2,790	2,660	31,453
BIRCH RUN:													
Daily average	46	43	43	42	41	37	38	30	36	35	38	35	
Month	1,426	1,204	1,333	1,260	1,271	1,110	1,178	930	1,080	1,085	1,140	1,085	14,102
DUNDEE-MONROE:													
Daily average	14	19	18	18	18	17	31	59	44	109	95	90	
Month	434	532	558	540	558	510	961	1,829	1,320	3,379	2,850	2,790	16,261
MONTCALM COUNTY:													
Daily average	461	519	561	492	417	443	404	391	397	366	359	366	
Month	14,291	14,532	17,391	14,760	12,927	13,290	12,524	12,121	11,910	11,346	10,770	11,346	157,208
ALLEGAN COUNTY:													
Daily average	4,274	4,298	4,629	6,297	8,106	9,287	10,092	10,316	8,679	8,567	8,586	8,320	
Month	132,494	120,344	143,499	188,910	251,286	278,610	312,852	319,796	260,370	265,577	257,580	257,920	2,789,238
MUSKEGON:													
Daily average	91	132	95	113	101	96	106	150	61	117	86	89	
Month	2,821	3,696	2,945	3,390	3,131	2,880	3,286	4,650	1,830	3,627	2,580	2,759	37,595
WALKER-WYOMING-TALLMADGE:													
Daily average	89	314	542	2,330	2,501	6,732	9,188	9,755	10,330	13,216	16,308	16,815	
Month	2,759	8,792	16,802	69,900	77,531	201,960	284,828	302,405	309,900	409,696	489,240	521,265	2,695,078
VAN BUREN COUNTY:													
Daily average	14,574	16,381	13,653	16,170	18,291	15,758	14,148	13,926	12,310	9,561	8,920	8,810	
Month	451,794	458,668	423,243	485,100	567,021	472,740	438,588	431,768	369,300	296,391	267,600	273,110	4,935,323
ZEELAND:													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	90	194	41	22	
Month	.....	.....	.....	.....	.....	.....	.....	.....	2,700	6,014	1,230	682	10,626
Daily average	56,183	59,495	58,504	63,704	67,039	67,549	68,898	68,365	64,080	64,692	68,036	67,915	64,566
Total 1939	1,741,673	1,665,860	1,813,624	1,911,120	2,078,209	2,026,470	2,135,838	2,119,315	1,922,400	2,005,452	2,041,080	2,105,365	23,566,406
Total 1938	3,226,339	2,887,254	3,145,000	2,954,202	3,009,427	2,738,019	2,901,880	2,956,461	2,867,801	3,031,886	3,250,438	3,039,820	36,008,527
Total 1937	2,744,129	2,735,529	3,116,093	3,156,154	3,412,581	3,430,106	3,436,277	3,399,083	3,389,442	3,241,495	3,109,259	3,267,924	38,438,072
Total 1936	1,865,049	1,838,608	2,097,447	2,055,198	1,303,441	2,183,776	2,235,797	2,329,632	2,251,558	1,510,447	2,469,218	2,506,288	26,647,459

MICHIGAN DISCOVERIES IN 1939

Field and county—	Date of discovery	Operator and farm name—	Location	Producing formation	Depth (ft.)	Initial (bbl.)	Comp. to date
Carscallen, Ottawa	4-12-29	Carscallen & Anderson's No. 1 Longnecker	SE SE SE 4-7n-13w	Traverse	1,750	180	1
Walker, Kent	2- 8-39	Smith Pet. Co.'s No. 1 Whalen	SW SE SW 32-7n-12w	Traverse	1,822	400	..
Wyoming, Kent	.....	Swanson Consolidated Co.'s No. 1 Fletcher	SE SW SE 32-7n-13w	Traverse	1,766	3,000	294
Zeeland, Ottawa	9-20-39	Freman Oil Co.'s No. 1 Huyser	SW SE SE 5-5n-14w	Traverse	1,661	130	1
S. Zeeland, Ottawa	10- 4-39	Chapman Oil Co.'s No. 1 De Keine	NE NE SE 25-5n-14w	Traverse	1,651	12	1
Hopkins, Allegan	2-15-39	Chulsky & Varner's No. 1 Brower	NW SW NW 23-3n-12w	Traverse	1,625	90	7
Gobles, Van Buren	4-15-39	C. C. Goff's No. 1 Miller	NW NW NE 24-1s-14w	Traverse	1,355	500	1
Bangor, Van Buren	3-29-39	Blood & Hendershott's No. 1 E. Jackson	NE NE NE 29-2s-16w	Traverse	1,004	270	10
Clapsaddle, Van Buren	3- 8-39	Clappsaddle's No. 1 Been	NW NW NE 24-1s-15w	Traverse	1,151	590	12
Porter, Van Buren	10-25-39	R. T. & E. Co.'s No. 1 Thersen	SW SE SW 18-4s-13w	Traverse	1,147	35	1

of Traverse prospecting in the Salem field brought a total of 63 tests completed, with only one of them a dry hole. The total daily initial of these wells was 21,157 bbl. New Salem was even a more active locality, 83 tests being completed in that area, although 12 of them were dry holes. The initial of the successful completions totaled 24,719 bbl.

Skunk Lake was active during the first half of the year, but 11 dry holes discouraged the continuance of prospecting. Columbia and Southeast Columbia were quite active throughout the year, but Bloomingdale overshadowed everything in the area during the first 6 months, but by August the pool was outlined and completions during the last 4 months resulted in only two oil wells.

Two major innovations were also recorded, the passage of a conservation law and the introduction of rotary drilling. The bill empowering the state to regulate production in the interest of conserving a natural resource passed the legislature early in the year and P. J. Hoffmaster began establishing regulations. The main difficulty has been to convince the operators that the bill is as good in practice as it was in theory. Curtailment has not been drastic and with the close of the year the administration of the act was running more smoothly.

The Walker-Wyoming field attracted attention to the state and one prospector brought a new portable rotary rig with which to drill his wells. In the Van Horn field the Gulf Oil Co. began using a rotary-drilling rig for the entire hole, a decided departure from Michigan practice. The few rotaries in the state were used for the drilling of the surface hole and cable tools were used to complete the job.

Some seismograph work was also going on in the state as the year closed, evidence that Michigan prospectors are attempting to locate their wells on basic data.

The entire picture points to a continuance of the activity of the past 18 months as the market for Michigan crude improved throughout the year. Refinery and pipe-line construction throughout the year was not extensive, but it was encouraging and with a more stabilized production the state is hopeful of further increases in these departments.

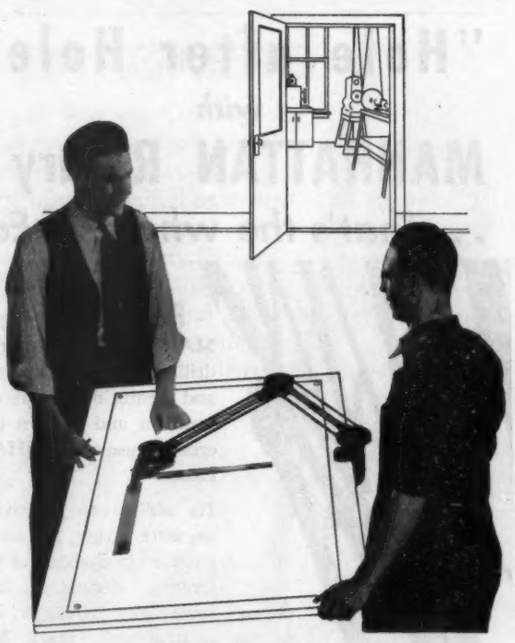
MICHIGAN

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas
Adams	3	249	1	0
Austin (gas)	1	0	0	1
Bangor	29	2,210	19	0
Beaverton	2	0	2	0
Bentley	7	3,850	1	0
Bloomingdale	160	52,478	33	0
Bloomfield	2	418	0	1
Clayton	22	505	1	14
Columbia	46	9,795	17	0
Deerfield	8	1,290	2	1
Dorr	2	300	1	0
Edmore	10	314	3	7
Freeman	94	101,402	8	10
Freeman-Redding	21	23,017	1	2
Gobles	21	6,420	15	0
Hemlock	1	0	1	0
Hopkins	4	550	2	0
Hopkinsburg	11	510	6	0
Kent	48	38,815	3	0
Grand Rapids	247	115,515	20	0
Lincoln (gas)	1	0	0	1
Loomis	17	4,773	2	2
Monterey	2	0	0	2
Mount Pleasant	1	50	0	0
New Salem	83	24,719	12	0
New Haven	5	225	2	2
Overisel	7	1,490	0	0
Porter	1	111	0	0
Pine	1	0	1	0
Ravenna	1	0	0	1
Redding	1	1,000	0	0
Salem	63	21,157	1	0
Sherman	5	1,194	1	0
Skunk Lake	21	1,923	11	0
SE Columbia	39	11,849	11	0
SE Grand Rapids	9	455	3	1
Stewart	16	5,178	2	0
S. Stewart	1	110	0	0
W. Branch	10	559	1	0
Wise	1	300	0	0
Wisner	7	467	3	1
Winegard	1	37	0	0
Winefield	4	0	0	3
Zeeland	3	0	3	0
Wildcats	354	1,257	338	3
Total	1,392	434,492	527	52

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	83	21,058	34	1
February	89	37,148	31	2
March	176	32,002	40	1
April	111	31,134	53	6
May	128	52,714	54	5
June	113	54,263	45	4
July	107	51,002	44	6
August	108	44,481	39	5
September	107	39,440	49	5
October	118	36,736	45	6
November	108	25,250	40	6
December	134	25,249	53	5
Total 1939	1,392	434,492	527	52
Total 1938	1,000	255,148	406	28
Difference	392	179,344	121	24



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Natural-Gas Industry Had Record of Expansion

By H. STANLEY NORMAN

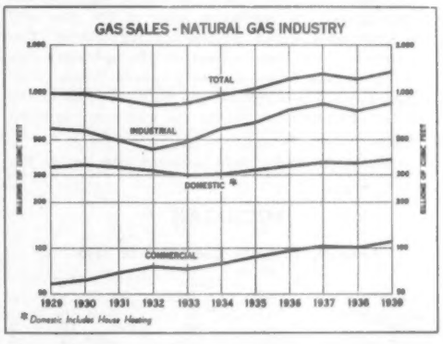
THE gas utilities of the United States continued their record of progress and expansion during 1939, according to Walter C. Beckjord, president of the American Gas Association.

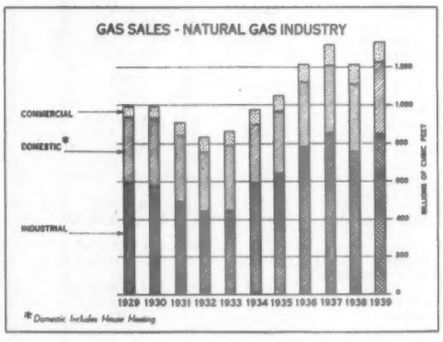
Manufactured and natural-gas companies, supplying towns and cities with a population of almost 82,000,000, served a total of 17,548,000 customers, representing the largest number of consumers ever connected to the mains of the industry and an increase of 376,000 over the year 1938. Of these, 10,100,100 were served by the manufactured-gas industry and the remaining 7,447,900 were served by the natural-gas industry. Revenues of the entire industry, both manufactured and natural, aggregated $517,137,000, a gain of 5.2 per cent over the preceding year of 1938. The natural-gas companies grossed $449,073,000, a gain of 7.8 per cent for the year, while revenues of the manufactured-gas companies were $368,064,000, as compared with $360,494,000 in 1938, an increase of 2.1 per cent.

The sales of natural gas for domestic uses registered a pronounced upturn, rising from 352,964,000,000 cu. ft. in 1938 to 376,613,000,000 cu. ft. in 1939, a gain of 6.7 per cent. Sales of natural gas for industrial purposes rose from 589,398,000,000 cu. ft. in 1938 to 655,389,000,000 cu. ft. in 1939, in increase of 11.2 per cent.

Preliminary estimates indicate that the total production of natural gas in 1939, including amounts used in the manufacture of carbon black and for field purposes, reached a total of 2,200,000,000,000 cu. ft. Approximately 192,000,000,000 cu. ft. of natural gas were used as fuel for generating electric power in 1939. This was an increase of nearly 13 per cent over the previous year.

Gas companies continued to inaugurate more favorable rates for house heating through central-plant burners and equipment. It is estimated




GAS SALES - NATURAL GAS INDUSTRY
COMMERCIAL
DOMESTIC *
INDUSTRIAL
1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939
* Domestic Includes House Heating

that the total number of gas central-house-heating installations connected to the lines of all United States gas companies in 1939 amounted to 900,000. In addition there were approximately 1,600,000 dwellings heated by unit heaters, space heaters, floor furnaces, etc., giving a total of more than 2,500,000 homes in the United States that are heated by gas.

In recent years, the gas industry has supplemented the substantial amount of research conducted by gas-appliance manufacturers by a vigorous and well-planned program of research and development through the American Gas Association. Gas is also receiving increased recognition in the air-conditioning field, where control of humidity as well as temperature is required.

The use of gas for commercial and industrial purposes throughout the country is growing rapidly in volume. New outlets are presenting themselves in this branch of the industry. Recent marked changes in materials which go into dwelling structures calling for more use of structural steel, glass, brick, synthetic stone, metalized wood, fabricated steel and concrete in home construction are resulting in a correspondingly great-

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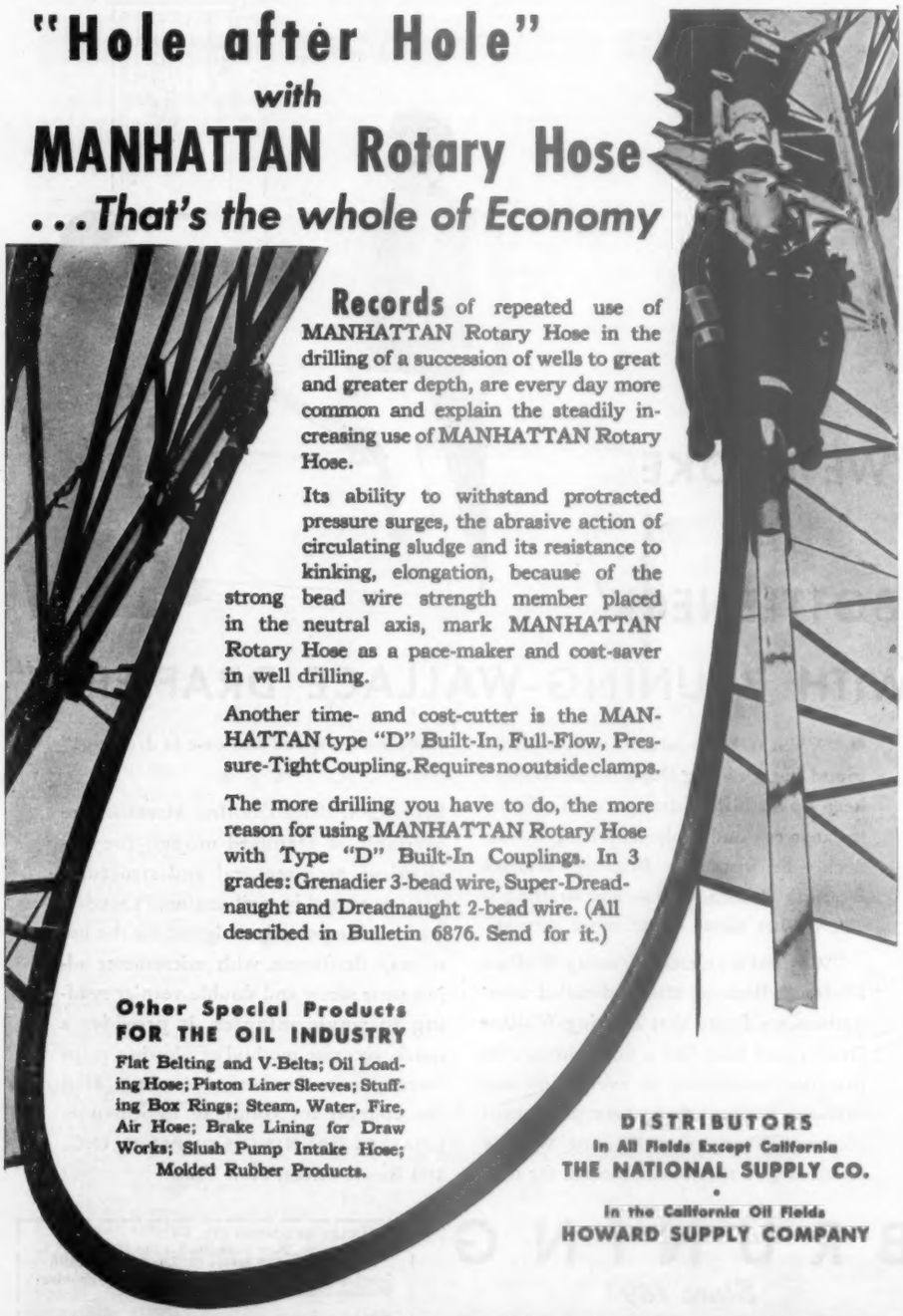

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Other Special Products FOR THE OIL INDUSTRY

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er demand for use of gas in the production of these products.

PRELIMINARY ESTIMATES ON THE GAS INDUSTRY FOR 1939

	1939	1938	Per cent change
Customers:			
Domestic (incl. house heating)	16,491,400	16,140,000	+2.2
Industrial and commercial	1,056,600	1,032,000	+2.4
Total	17,548,000	17,172,000	+2.2
Gas sales (M.c.f.):			
Domestic (incl. house heating)	625,980,000	597,934,000	+4.7
Industrial and commercial	1,071,297,000	964,062,000	+11.1
Total	1,697,277,000	1,561,966,000	+8.7
Revenue (dollars):			
Domestic (incl. house heating)	$550,281,000	$532,045,000	+3.4
Industrial and commercial	266,856,000	245,029,000	+8.9
Total	$817,137,000	$777,074,000	+5.2

PRELIMINARY ESTIMATES ON THE NATURAL-GAS INDUSTRY FOR 1939

	1939	1938	Per cent change
Customers:			
Domestic (incl. house heating)	6,860,400	6,665,000	+2.9
Commercial	543,900	524,000	+3.8
Industrial	43,600	42,000	+3.8
Total	7,447,900	7,231,000	+3.0
Gas sales (M.c.f.):			
Domestic (incl. house heating)	376,613,000	352,964,000	+6.7
Commercial	110,541,000	100,951,000	+9.5
Industrial	655,389,000	589,398,000	+11.2
Electric generation	192,144,000	170,039,000	+13.0
Total industrial and electric generation	847,533,000	759,437,000	+11.6
Total	1,334,687,000	1,213,352,000	+10.0
Revenue (dollars):			
Domestic (incl. house heating)	$256,732,000	$242,568,000	+5.8
Commercial	50,500,000	47,240,000	+6.9
Industrial and electric generation	141,841,000	126,682,000	+12.0
Total	$449,073,000	$416,580,000	+7.8

Describing how "the natural-gas industry meets the challenge of changing conditions" E. H. Poe, secretary of the Natural-Gas Section, American Gas Association, says:

In the beginning of 1939 the first national survey of gas in private housing was undertaken; 101,000 one and two-family houses were constructed during 1938 in areas supplied with natural gas. Of these, 90.2 per cent put in gas for cooking and nearly as many, 88.9 per cent installed gas for water heating. Gas-house heating was installed to a somewhat smaller extent, 77.8 per cent, but the results are nevertheless a tribute to the natural-gas industry. Refrigeration can hardly be evaluated because so many homes are erected without having the refrigerator as part of the initial construction; 10.5 per cent of the houses, nevertheless, were supplied with gas refrigeration.

This growing public acceptance of gas fuel and strictly modern gas appliance is due in large part to the increased sales drives inaugurated by the industry from coast to coast and to the special and inherent advantages of gas fuel itself. The personnel of the gas industry was never more alive to its sales opportunities than at this moment.

In a brief span of years this fuel—natural gas—untouched by human hands, unseen by the human eye from the time it leaves the earth until it becomes a flame, is enjoyed by some 40,000,000 people or 30 per cent of the population of the United States. It is used by 7,448,000 customers in 34 states.

When a system is built for supplying a market reasonably close to the source of supply it is possible to develop the transmission facilities gradually with the growth of the demand. When a long high-pressure pipe line is required for transmitting the gas to a far distant market a new element enters into the problem, for here it becomes necessary to anticipate the future and to build a system of sufficient capacity to provide for the growth of business as estimated for several years to come. This requires an investment in a plant having excess capacity to begin with and incurs fixed charges which are usually difficult to meet during the first few years of operation pending saturation of markets available. In spite of the fact that many of the major pipe lines were built just before or in the early days of the depression, it is interesting to note that practically all of them are loaded to capacity and several of them have built or are building increased pipe-line capacity.

Of primary concern to a natural-gas company is the necessity of constantly extending its gas reserves in order that service may be prolonged to the greatest possible extent. During the past few years new reserves have been discovered and developed. The major companies are continuing their search for additional reserves and the outlook for a continuation of natural-gas service for many years to come is now extremely bright. The future of the natural-gas industry is as far reaching as its reserves and with the exception of a few isolated areas that end is not in sight.

Much of the industry's effort is centered on improvement in the existing uses of gas in industrial enterprises and in research, in the development of new uses for gas. As an indication of the value of this work, one study points out "that the industries that consumed about one-third of the industrial gas in 1929 are not now in existence and that a large proportion of the new sales developed since that period were required to offset the losses in business by the extinction of these customers as well as show a marked increase in industrial sales in 1939 over 1929." This is a remarkable illustration of the change which is constantly taking place in industry over a period of years which we do not perceive from a short range, day-to-day viewpoint. It also indicates the ability of the natural-gas industry to change its pace when changing of the times requires it.

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The Oil Industry looks to Plymouth Manila Cordage for maximum strength and longer, more economical service. These come from a scientific control-of-quality process, whereby *all* Plymouth rope is regularly inspected at every stage during its precision process of manufacture. Designed especially for oil field use, one of the many factors in construction is a special lubricant which is added to Plymouth Manila Rope to protect it against internal and external wear. If you want *consistently maintained* quality, do as so many other oil men do—look for the Ship Brand Trademark!

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The Rope you can Trust

Death Roll in Industry in 1939

A

Adams, Larmour "Mike," 54, Pittsburgh Equitable Meter Co., Erie, Pa., March.

Adams, Leroy, 56, president, Galvez Oil Co., Abilene, Tex., June 26.

Alleman, J. B., 63, superintendent, Texas Pipe Line Co., Henderson, Tex., December.

Allender, Walter G., 63, oil operator, Los Angeles, Calif., June 4.

Angus, Eugene Philip, 61, retired vice president, Magnolia Petroleum Co., Dallas, Tex., September 13.

Apple, Samuel A., 68, oil man, Los Angeles, December 4.

Armstrong, L. D., 52, secretary-treasurer, Gaso Pump & Burner Manufacturing Co., Tulsa, Okla., April 20.

B

Baker, Herbert, 73, former chairman of board, Vacuum Oil Co., Sayre, Pa., July 4.

Balsiger, Paul M., 40, oil operator, Foster Brook, Pa., September 16.

Barkley, J. Pat, 56, pioneer North Texas drilling contractor, Wichita Falls, Tex., November 16.

Barnwell, Robert C., 61, oil operator, Gilmer, Tex., February.

Barton, Dr. Donald C., 50, director of geophysical research, Humble Oil & Refining Co., Houston, Tex., July 8.

Beaty, Amos L., 68, former president, A.P.I., New York, April 29.

Belshe, Ralph L., 33, Gulf Coast division, Petroleum Rectifying Co. of California, Houston, Tex., June.

Bignell, Leonard G. E., 60, former petroleum engineering editor, The Oil and Gas Journal, Tulsa, September 8.

Birtchiel, Charles Edward, 87, oil man, Pithole, Pa., August.

Bole, George,, 59, independent operator, Tulsa, August 28.

Bonner, John S., pioneer oil man, retired vice president, Humble Oil & Refining Co., Houston, Tex., May 30.

Borough, Willard Leo, 55, general superintendent, General Petroleum Corp., Los Angeles, Calif., July.

Bostaph, Frederick David, 61, retired general sales agent, Texas Pacific Coal & Oil Co., Fort Worth, Tex., December.

Boyle, Melvin W., 47, oil operator, Dallas, Tex., July 28.

Bradbury, William P., 53, vice president, Consolidated Ashcroft Hancock, Bridgeport, Conn., February.

Bradley, Irvin E., 63 independent producer, Wichita, Kans., January.

BreDahl, M. C., 60, retired oil man, Tulsa, August.

Brown, Stanley P., 47, vice president and general manager, Hughes Tool Co., Houston, Tex., August 11.

Bryant, R. B., 52, oil man, Dallas, Tex., May 21.

Bullock, Frank Nash, 82, secretary-treasurer, West Columbia Oil Co., Houston, Tex., January 25.

Burger, Charles B., 58, vice president, Gulf Refining Co., Pittsburgh, Pa., January 3.

Burt, Joseph, 80, pioneer West Texas oil man, Brownwood, Tex., March.

Butler, Charles Royal, 52, president, Signal Petroleum Co., Long Beach, Calif., June.

C

Callinan, Richard, 85, oil operator, Calgary, Canada, January.

Carter, C. E., 53, former Indian Territory Illuminating Oil Co. lease official, Oklahoma City, Okla., March.

Catlett, Edwin C., 52, oil producer, Tulsa, Okla., March.

Chambers, H. H. (Jack), 47, western sales manager, Caterpillar Tractor Co., Oakland, Calif., October 21.

Charlton, Herbert, 48, field superintendent, Union Gas Co., Port Alma, Ont., November.

Chew, William Douglas, 55, pioneer oil operator, Shreveport, La., April 7.

Claeys, Charles M., 48, assistant general manager, export department, Texas Co., Willimantic, Conn., July.

Coast, William F., 88, pioneer oil producer, Olean, N. Y., April 1.

Cole, J. Don, Sr., 44, district superintendent, Humble Oil & Refining Co., April.

Collins, Thomas Arthur, 75, oil operator and driller, Petrolia, Ont., November.

Conkling, E. C., 84, retired, Standard Oil Co. of Indiana, Miami, Fla., June 4.

Conover, W. B., 67, oil man, Lake Charles, La., June 15.

Cook, Paul, 55, pipe line department, Standard Oil Co. of Louisiana, Baton Rouge, La., March.

Craig, W. D., 76, organizer, Queen City Oil Co., Regina, Sask., Canada, January.

Crary, G. E., 86, Lone Star Oil Co., Houston, Tex., August 11.

Crawford, John William Roy, former vice president, Standard Oil Co. of New Rochelle, N. Y., July 6.

Cross, James D., 71, drilling contractor, Chelsea, Okla., December 10.

Crowe, Raymond R., 61, local manager, United Natural Gas Co., Bradford, Pa., September 19.

D

Dailey, Charles A., 59, superintendent of production, southern California district, Standard Oil Co., June.

Daniels, "Dan," 75, organizer D. & B. Pump & Supply Co., Santa Monica, Calif., June 26.

Daniels, Joseph Verbal, 47, production superintendent, Gled Oil Co., Tulsa, October 25.

Davidson, Buford W., 34, export service manager, M. O. Johnston Oil Field Service Corp., Karachi, India, February 23.

Davis, J. W., 42, president, Davis Gas Corp., Paola, Kans., October.

Day, Addison B., 65, chairman, Southern California Gas Co., until retirement September 1, Los Angeles, November 28.

De Ganahl, Charles Francis, president, Tal Vez Oil Co., New York, May.

Dennison, Richard Vincent, 59, oil man, Dennison, Wyo., September 27.

Dickie, Walter H., 53, traffic manager, Imperial Oil, Ltd., Toronto, Ont., Canada., April 13.

Dickson, Robert R., 50, vice president Benedum-Trees Oil Co., Pittsburgh, Pa., September 27.

Doan, Murray M., 71, independent operator, Tulsa, November 4.

Donnelly, John Edward, 56, pioneer oil man, Tulsa, August 11.

Doyle, Otto L., 51, retired Carter Oil Co. employe, Oklahoma City, Okla., May 20.

Draper, Walter Harold, 50, former driller, Toronto, Canada, November.

Duga, Frank S., 62, oil man, Tulsa, December 24.

Duncan, Levi H., 78, retired sales manager, Pittsburgh Equitable Meter Co., Monroe, La., May.

Dunigan, E. J., oil-well tool and supply man, Breckenridge, Tex., November 2.

Dunn, Joseph A., division manager, National Supply Corp., Los Angeles, Calif., December 15.

E

Eastbourne, Charles, 66, independent oil operator, Dallas, Tex., November 22.

Eaton, Ray A., 34, Danciger Oil Refineries, Inc., Pampa, Tex., March.

Elizey, C. E., 45, oil operator, Shreveport, La., January.

Elliott, Robin A., 41, vice president, F.H.E. Oil Co., Fort Worth, Tex., July 7.

Elsworth, W. B., 71, former head marine departments, Imperial Oil and International Petroleum Co., Halifax, September 1.

Emerson, John L., 70, oil executive, Titusville, Pa., February.

Evans, Harry M., pioneer oil man, Pasadena, Calif., July 20.

Everest, Raymond W., 60, former director, Vacuum Oil Co., Plainfield, N. J., January 26.

F

Faerber, Howard Frederick, 48, district manager, Texas Co., Los Angeles, August.

Fain, Ernest R., Fain-McGaha Oil Corp., Wichita Falls, Tex., March 18.

Fallon, Francis I., 49, former counsel, Tide Water Oil Co., Scarsdale, N. Y., September 27.

Felt, A. C., 69, secretary-treasurer, William Penn Petroleum Co., Tulsa, December 22.

Findley, John H., 78, retired oil well driller, Wichita, Kans., August.

Findley, John Laurence, 69, retired oil man, Oil City, La., November.

Finley, James W., 63, former general counsel, Empire Oil Co., Bartlesville, Okla., July.

Fondren, W. W., 61, pioneer oil man, San Antonio, Tex., January 5.

Foster, Henry Vernon, 63, president, Foster Petroleum Corp., Los Angeles, Calif., June 5.

Frame, Harry Allen, 57, owner, Frame Gas Co., Tulsa, August.

Fulton, C. R., 50, Texas-Empire Pipe Line Co., Cushing, Okla., December 3.

G

Gallagher, John Conrad, 56, field manager, Pyinma Development Co., Ltd., Yenangyaung, Upper Burma, February 11.

Garnett, Charles B., 51, president, Oil City Petroleum Co., Denver, Colo., March.

Gavin, Anthony W., 79, retired assistant superintendent, Iroquois Gas Co., Buffalo, N. Y., January 5.

Garrison, Kenneth A., 37, oil man, Houston, Tex., May 14.

Gehrken, J. Wallace, 60, general manager, Monroe Co-operative Oil Co., Monroe, Mich., July.

Gessel, Ben M., 63, pioneer oil man, Tulsa, July 28.

Giffert, George W., president, Nelle B. Old Oil Co. and associated with Carter Oil Co., Decatur, Ill., November 18.

Gilchrist, William John, 73, former superintendent, Imperial Oil Refinery, Sarnia, Ont., November.

Gleason, Fred S., 45, superintendent of operations, gasoline department, Phillips Petroleum Co., Bartlesville, Okla., January 25.

Goodloe, Harvey C., 60, operator, Abilene, Tex., May.

Gordon, Col. Robert David, 53, pioneer oil operator, Fort Worth, April 17.

Goss, Burnett, 52, oil operator, Tulsa, Okla., June 7.

Gray, James C., veteran oil man, Caney, Kans., February.

Gubkin, Ivan, 68, vice president, U.S.S.R. Academy of Sciences, Moscow, April.

H

Hague, Robert L., 59, manager marine department, Standard Oil Co. (New Jersey), New York, March 8.

Hamaker, H. L., 74, father Rex G. Hamaker, vice president, Reed Roller Bit Co., Los Angeles, Calif., March.

Hamilton, William B, 89, driller, Petrolia, Ont., Canada, October.

Hancock, John, 54, vice president, Texas Pacific Coal & Oil Co., Fort Worth, Tex., January.

Hardcastle, J. D., 58, vice president, Spang Chalfant, Inc., Hollywood, Calif., June 12.

Harlan, J. H., 54, assistant secretary-treasurer, Sun Pipe Line Co. of Texas, July 21.

Harrington, John, 45, district sales manager, Reading-Pratt & Cady, Chicago, March.

Harris, C. P., oil man, Lamkin, Tex., March 24.

Harrison, B. H., treasurer, Taylor Refining Co., Taylor, Tex., June 2.

Hartman, Joseph W., 35, vice president, Imperial Oil & Gas Products Co., Monroe, La., June 15.

Hemphill, John Ross, 57, independent producer, Tulsa, December 29.

Herron, W. S., 69, pioneer oil man, president, Okalta Oils, Ltd., Calgary, Alberta, July.

Hickman, Charles, 43, oil operator, Waxahachie, Tex., July.

Hill, Dr. H. A., 66, oil man, Amarillo, Tex., October.

Hoff, John Jacob, 80, first Standard Oil Co. French representative, Chateau Peyrieu, France, December 2.

Hollinger, Irvin, 33, land department, Gulf Oil Corp., Tulsa, Okla., February 2.

Holloran, Michael, 79, pioneer gas and oil contractor, Indianapolis, Ind., February 13.

Hoss, C. M., oil man, Albuquerque, N. M., January.

Hovell, Frank, 56, assistant superintendent, H. H. Cross refinery, Smackover, Ark., May 19.

Howard, D. S., 52, oil man, Tulsa, December 11.

Hoyt, Frank H., 70, former purchasing agent, Standard Oil Co., Fort Lauderdale, Fla., February.

Huff, Charles F., 56, vice president, Columbia Oil & Gasoline Corp., Columbus, Ohio, January 30.

Hunter, James Newton, 54, general superintendent Tulsa pipe-line division, Gulf Refining Co., Tulsa, October 19.

Hurley, Joseph S., 40, operator, Warren, Ark., January 29.

J

Jackson, William H., 71, president, Pittsburgh-Des Moines Co., Pittsburgh, Pa., April 26.

Jeffers, O. R., independent oil operator, Midland, Tex., November.

Johnson, Edward A., 58, vice president, Pittsburgh Equitable Meter Co., Bellevue, Pa., January.

Johnson, Luther H., 53, president, Pennzoil Co. of California, Beverly Hills, Calif., May 6.

Jones, Howard G., 63, former vice president, Standard Oil Co. of Ohio, Cleveland, Ohio, October 20.

K

Kahl, Wallace S., 43, oil man, Oklahoma City, Okla., March.

Kalkhoff, Benjamin, organized Sapulpa Refining Co., San Antonio, Tex., December.

Kaney, W. W., foreign oil field operator, Chanute, Kans., October 1.

Kell, Joseph A., 41, vice president, Deep Oil Development Co., Wichita Falls, Tex., November 21.

Keller, Clarence A., 78, pioneer driller, Sinclair Prairie Oil Co., Tulsa, September.

Kerr, James K., 75, one of founders of Ohio Oil Co., Miami, Fla., March.

Key, Fred E., 70, refinery equipment manufacturer, St. Louis, Mo., February 26.

Kilgore, E. P., 53, operator, Oklahoma City, January.

Krieger, Isaac G., 56, refinery owner, Glendale, Calif., August.

L

Lamb, G. E., 57, drilling contractor, Big Spring, Tex., February.

Lambeth, William Hilton, 56, retired oil operator, San Antonio, Tex., May 30.

Lampman, P. M., 56, former manager, Union Gas Co., Tilbury, Ont., Windsor, Ont., November.

Landreth, E. L., 53, Landreth Production Co., Corpus Christi, Tex., June 15.

Landreth, W. H., chairman, Landreth Production Corp., Joplin, Mo., March.

Lane, John W., 40, secretary-treasurer, Motor Fuels Corp., Lubbock, Tex., December 22.

Lantz, John J., 83, pioneer retired oil man, Tulsa, July 6.

Lechner, Michael, 78, oil man, retired, March.

Lee, Carl, 62, veteran employe of Standard Pipe Line Co., Tulsa, December.

Lee, T. P., 69, retired director, American Republics Corp., Houston, Tex., February 4.

Leech, Charles F., 77, superintendent of industrial relations, Indian Territory Illuminating Oil Co., Bartlesville, Okla., January 14.

Lege, Fred M., Jr., vice president, Magnolia Petroleum Co., Dallas, Tex., August 30.

Lennan, Patrick, 77, driller, Petrolia, Ont., Canada, January.

Lindley, Buchanan Wood, 59, traveling auditor, Humble Oil & Refining Co., Nacogdoches, Tex., July 21.

Logan, Walter, H., 61, receiver for Virginia Oil & Refining Co., Fort Worth, Tex., August 12.

Lowe, Rupert W., 57, former production superintendent, Standard Oil Co. of Louisiana, Shreveport, La., April 25.

Lowrie, Arthur L., pioneer oil man, Sewickley, Pa., August.

Mc

MacKenzie, William Lyon, 75, managing director, Oil Well Engineering Co., Stockport, England, August 28.

McAlear, James, president, McAlear Manufacturing Co., February.

McCaffary, John, 67, president, Madison Oils, Ltd., Calgary, Alta., July.

McDaniel, Fred C., chief clerk land department, Gulf Oil Corp., Houston, Tex., November 4.

McIntosh, George C, 85, oil man, Oliver, B. C., Canada, November.

McGraw, Frank P., Phillips Petroleum Co., Amarillo, Tex., August 11.

McGowan, John R., traveling auditor, Universal Oil Products Co., Augusta, Kans., January.

McMahon, T. J., 56, vice president, Texas Pipe Line Co., Houston, Tex., May 24.

McVey, M. W., 45, independent oil operator, Kilgore, Tex., July 15.

M

Mackie, Robert A., 81, chairman of board, Bradford Supply Co., Bradford, Pa., August 30.

Maddux, F. C., Llano Construction Co., Pampa, Tex., December 27.

Maloney, George J., vice president, Maloney Tank Manufacturing Co., Long Beach, Calif., October 8.

Marx, G. V. D., 39, assistant chief petroleum engineer, Standard Oil Co. of California, May.

Matthews, James W., 67, oil producer and refiner, Bradford, Pa., November 13.

Matthews, Robert S., 60, retired independent oil producer, Tulsa, December.

Mead, Bert A., 62, retired employe, Standard Oil Co. of Louisiana, Shreveport, La., August 28.

Meals, Samuel W., 69, president, Carnegie Natural Gas Co., Pittsburgh, Pa., January 4.

Melvin, Thomas P., 65, former vice president, Chestnut & Smith, Tulsa, Okla., May 26.

Metz, Eugene, 71, resident manager American Meter Co., Kansas City, Mo., November 28.

Mildren, J. M., oil lease dealer, Owensboro, Ky., July.

Miller, John C., 73, special sales representative, Mid-Continent Petroleum Corp., Tulsa, November 13.

Miller, Luther, 81, veteran oil man, Columbiana, Ohio, December 4.

Miller, Sir Ernest, 60, retired oil company executive, England, March 22.

Miller, W. F. Beany, 58, superintendent in charge of production, States Oil Corp., Eastland, Tex., November.

Mireles, Gustavo Espinosa, manager, Mexican Government's petroleum sales agency, May 4.

Mitchell, William R., 64, pipe-line builder, Dallas, Tex., November 12.

Modisett, Joe, 41, Modisett Drilling Co., El Dorado, Ark., November 24.

Moore, Hugh Kelsea, 67, former gold medalist, American Institute of Chemical Engineers, Dunedin, Fla., December 18.

Mosier, Martin Henry, 83, "Grand Old Man of the Industry," Los Angeles, Calif., February 13.

Mock, Jeff, 27, former petroleum engineer, Arkansas Board of Conservation, Barksdale field, Louisiana, May.

Moffitt, John S., 47, Humble Pipe Line Co., Houston, Tex., June.

Morrison, R. H., 43, former vice president, California-Texas Oil Co., May.

Mount, Charles L. 64, retired drilling contractor, New Orleans, La., September.

Munger, H. M., 68, independent oil man, Dallas, Tex., July 10.

Murphy, Daniel, 83, organized Brea Canyon Oil Co., Los Angeles, Calif., September.

Murphy, William, Sinclair Refining Co., pipe line department, Kansas City, Mo., May 24.

N

Nelson, Kenneth, 33, superintendent, Ray Stephens, Inc., May 26.

Nutty, Gale R., 68, retired director, Gulf Oil Corp., Pittsburgh, Pa., May 31.

Nolan, James, 90, pioneer drilling contractor, Allegany, N. Y., September 28.

O

O'Harrow, John, 84, pioneer oil man, May 31.

O'Neil, William D., former secretary-treasurer, The Oil and Gas Journal, Buffalo, N. Y., July 4.

P

Pace, Homer A., 43, driller, Dallas, Tex., May 4.

Palmer, Dr. Charles Skeele, 81, inventor of a gasoline "cracking" process, Pittsburgh, Pa., November 30.

Parkin, E. E., 72, superintendent of production, John H. Tatlock, Ellinwood, Kans., June 17.

Parrish, William F., 65, chairman, lubrication engineering committee, A.S.M.E., New York, March.

Payton, H. L., 35, Sun Oil Co., Dallas, Tex., February.

Peyton, George L., 55, oil man, Mexia, Tex., December 26.

Phillips, Samuel C., 55, superintendent transport department, Tulsa division, Sinclair Oil Co., July 16.

Pickering, George W., assistant sales manager, Cleveland Tractor Co., Cleveland, Ohio, September 16.

Pollock, Fred H., 66, oil man, Tulsa, Okla., February 13.

Porter, Charles Greer, 49, president, Porter-Blanchard Oil Co., Corpus Christi, Tex., September 2.

Poulton, J. Charles, 37, head southwestern division, Deep Rock Oil Corp., Tyler, Tex., February.

Pugh, Joseph D., pioneer Canadian oil man, Vancouver, B. C., October.

Putnam, Paul T., 45, sales manager, Cameron Iron Works, Houston, Tex., August 15.

R

Randolph, Oren Ephriham, 48, district superintendent, Sinclair Prairie Oil Co., McPherson, Kans., March 24.

Ratliff, J. Everette, 54, oil operator, Vinton, Bradford, Pa., January 16.

Reardon, W. E., 58, general superintendent, Columbian Gasoline Corp., Monroe, La., November 16.

Reck, John F., 68, drilling contractor, Bradford, Pa., July 2.

Reed, Ralph J., 56, chief engineer, Union Oil Co., Los Angeles, July.

Richardson, George M., 51, oil operator, Fort Worth, August 14.

Rickerson, Clifford T., secretary and director, Sloan & Zook Co., Bradford, Pa., January.

Rickert, Julius, 81, petroleum geologist, Vancouver, B. C., August.

Rinehart, Ira, 41, publisher of Rinehart's Oil Reports, Tulsa, October 6.

Robinson, Arthur D., 56, producer, Dallas, Tex., January.

Rodgers, H. E., 39, independent operator, Amarillo, Tex., October.

Rosenthal, Henry, head, Spring-Rose Drilling Co., Vandalia, Ill., May 12.

Ross, James M., 48, drilling contractor, Dallas, Tex., July 13.

Ross, Harry, 77, president, Maloney Tank Manufacturing Co., Long Beach, Calif., April 9.

S

Sandsberry, J. E., 47, Oriental Oil Co., Dallas, Tex., August 10.

Schwab, Delmar Barr, oil producer, Bradford, Pa., March 20.

Scott, Archibald J., 61, managing director, Anaconda Oil Co., Calgary, Canada, October.

Scott, Clarence Newton, 70, retired vice president, Texas Co., Houston, Tex., January.

Scott, Walter Winthrop, chief petroleum engineer, Humble Oil & Refining Co., Houston, Tex., December 7.

Sedgwick, V., 81, former vice president, Galena Signal Oil Co., Tampa, Fla., September 11.

Seigle, William Robbins, 59, chairman of board, Johns-Manville Corp., Rochester, Minn., January.

Setzler, Horace B., 69, retired superintendent, National refinery, Coffeyville, Kans., July.

Shade, George W., 76, retired, Indiana Pipe Line Co. employe, Tulsa, September 20.

Shaw, Dr. James A., 58, director of Minerals Division, Louisiana Conservation Dept., New Orleans, August 20.

Sheehan, Raymond J., 42, president, Sheehan Pipe Line Construction Co., Tulsa, September 19.

Shields, Dennis D., 75, retired drilling contractor, Tulsa, August 12.

Sidwell, Walter L., 57, oil operator, Wichita, Kans., January.

Simons, Arian R., 73, oil producer, Tulsa, December 26.

Six, Homer J., 50, former employe of Sinclair Prairie Oil Co., Tulsa, Okla., April 2.

Sloan, W. L., senior employe, pipe line division, Gulf Oil Corp., Houston, Tex., April.

Smith, J. A., 60, retired drilling contractor, Muskogee, Okla., January 19.

Smythe, Asahel C., 93, producer, Bolivar, N. Y., March 22.

Snyder, George W., 71, retired driller, Tulsa, Okla., March 24.

Snyder, John Y., geologist, Shreveport, La., January 10.

Speary, John M., early operator, Marietta, Ohio, January.

Spellacy, Michael A., 81, oil man, Colombia, South America, March.

Stair, J. U., vice president in charge Shell Oil Co. Los Angeles activities, Pasadena, Calif., October.

Stearns, John W., Carter Oil Co., Dallas, Tex., November.

Stinson, John H., 91, retired oil producer, La., January 16.

Stranahan, Benjamin J., 72, producer, Robinson, Ill., February.

Stratton, R. L. (Dick), 66, production superintendent, Nowata fields, Sinclair Prairie Oil Co., Coffeyville, Kans., March 30.

Stuart, Phil, 67, president, Phillane Oil Co., Shawnee, Okla., September 25.

Suman, George O., father of John R. Suman, Hollywood, Calif., February.

Sutton, James G., 68, president, Sutton-Zwolle Oil Co., Vinton, La., April.

T

Tarr, Dr. W. A., professor of geology, University of Missouri, Columbia, Mo., August.

Tibbetts, J. C., drilling contractor, Bradford, Pa., March 24.

Thomas, O. H. P., 59, oil producer, Tulsa, November 22.

Thompson, Eugene L., 60, vice president, Pueblo Petroleum Co., Tulsa, Okla., January 1.

Thorpe, Paul, Magnolia Petroleum Co., St. Louis, Mo., June 7.

Tracy, David A., 67, producer, Petroleum Center, Pa., August 10.

Torrey, George H., 71, pioneer scout and operator, Pennsylvania, April 28.

Turner, C. B., 65, senior vice president, South Penn Oil Co., Pittsburgh, Pa., November 21.

V

Van Dyke, J. W., 89, chairman of board, Atlantic Refining Co., Philadelphia, Pa., September 13.

Van Wert, Lee Robert, 61, assistant traffic manager, Imperial Oil, Ltd., Toronto, Ont., Canada, June.

W

Waldron, Ralph Irving, 60, sales executive, Socony-Vacuum Oil Co., Inc., New Rochelle, N. Y., February.

Wanzer, James H., 82, former employe, Socony-Vacuum Oil Co., Inc., Brooklyn, N. Y., June.

Ward, Charles A., 69, editor, Pure Oil News, Columbus, Ohio, January 4.

Watson, Gordon, head of Kansas land and lease department, Cities Service Oil Co., Wichita, Kans.

Watson, George S., Jr., 24, Lubbock, Tex., September.

Weatherwax, C. M., 60, oil operator, San Francisco, Calif., January 13.

Whittington, James O., 64, pioneer oil man, Amarillo, Tex., April 29.

Williams, John W., 59, production superintendent, Barnsdall Oil Co., Wichita Falls, Tex., September.

Wilt, Samuel M., 69, independent oil operator, Wichita, Kans., November 29.

Winemiller, John H., 58, president, William Penn Oil Co., Tulsa, November 4.

Wittmer, Thomas, 67, vice president and treasurer, Wittmer Oil & Gas Properties, Pittsburgh, Pa., August 15.

Wolfe, Dell H., 52, Parkersburg Rig & Reel Co., January 10.

Wood, Forest E., 84, pioneer oil operator, DeGolia, Pa., April 5.

Wright, J. Leonard, driller, Zachary, La., December.

Y

Yates, Ira G., 79, oil man, Austin, Tex., April 12.

Yerks, Carlton Smith, 82, oil operator, Petrolea, Ont., Canada, December.

Young, John Alvin, 71, former vice president Island Oil Co., Fort Meyers, Fla., April 11.

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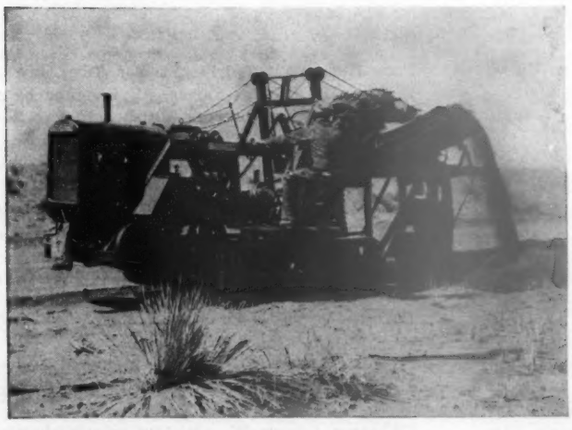

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Annual Review

NEW POOLS AND DEEP PAYS IN WEST TEXAS; QUIET IN PANHANDLE

By D. H. STORMONT

WILDCAT activity in West Texas in 1939 resulted in the opening of nine producing areas, and deeper pay horizons in established fields. Unlike some of the discoveries of recent years in the West Texas district, only two of last year's new pools show promise of becoming even fairly large.

New completions, as well as new production in the district, showed a decline from the record of 1938. As compared with 2,045 completions in 1938, there were 1,870 oil, gas and dry holes drilled in the year past. New production showed a decline of 104,085 bbl., in dropping from 1,568,254 bbl. in 1938 to 1,464,169 bbl. in 1939. The majority of the new production decline was seen in four counties—Winkler, Howard, Ward and Upton—most of the fields in these counties being practically drilled up. Receiving no small amount of drilling during the past year was the now-combined Wasson-Bennett field. Centering mainly in Yoakum County, this field increased that county's total from 161 completions and 130,556 bbl. initial production in 1938 to 354 completions and 353,506 bbl. initial production in 1939.

New Discoveries

Two of the new areas show greater promise than the others as 1940 gets under way; one because of a possible 3½-mile north extension, and the other because of its stimulation to exploratory drilling in the surrounding area. The first is the Cedar Lake field of northeastern Gaines County, on the east edge of Cedar Lake. Discovered early in September by Stanolind Oil & Gas Co.'s No. 1 J. B. Rayner, SW cor. Section 3, Block 30-C, P.S.L. Survey, the field embraced three wells at the close of the year with a fourth being completed. Two were offsets to the discovery well, while another was Stanolind's No. 1 T. S. Riley, 660 ft. from the south and 1,980 ft. from the east line of Section 11, Block H, D.&W. Survey. No. 1 Riley was still swabbing and testing as the year closed with indications it would be only a small producer if at all completed for a commercial well. The field has an estimated area of 2,500 acres and based on the present meager information, with approximately 50 ft. of saturation, has an estimated reserve of 18,750,000 bbl. The field is possibly located on the extreme eastern edge of the Permian basin platform. The discovery operators failed to find the Ellenburger section in their No. 2 Masterson, quarter-mile north of the discovery, and the Childress Royalty Co. also failed to find the section in No. 1 Masterson, east offset to the discovery. Continuing the search for deep production, several wildcats were actively drilling as the new year commenced in Pecos, Crockett and Ward counties.

In northern Pecos County in May, Anderson-Prichard Oil Co. and Monte Warner's No. 1 Masterson came in for production from the Ellenburger lime of Lower Ordovician to open the Apco pool, West Texas' third pool in that horizon. An intense and relatively widespread deep drilling campaign was launched throughout the greater part of the South Permian basin following the opening of Apco, but as the year ended no other Ordovician production had resulted. Two offsets to the pool opener were brought in for producers last fall, but at the same time two others were abandoned. It would be only a small producer if at all completed for a commercial well. The field has an estimated area of 2,500 acres and based on the present

As in the past 3 or 4 years, Ector County was the center of a major portion of the drilling activity. Not only did the regular lime pay of the county receive much development, but a new and deeper lime pay was opened in the north end of the North Cowden field in June by Gulf Oil Corp.'s No. 1 Holt. The deep discovery well, located in Section 1, Block A, P.S.L. Survey, found production in the lower Permian lime at 5,148-61 ft., the level being about 800 to 1,000 ft. below the regular horizon of production in the county. The well was completed June 27 for 217 bbl. daily to open the entire county and perhaps the entire southern basin area to deeper exploration. At the start of the new year Sinclair Prairie Oil Co. had completed an offset to the deep discovery well and Stanolind Oil & Gas Co. had completed a 2½-mile south extension, both of which indicate the importance of the horizon as an

WEST TEXAS DISCOVERIES IN 1939

County, location, discovery well—	Date	Depth	Gage	Formation	No. wells	Name pool	Remarks
Cochran, Labor 7, League 94, Mills C.S.L., T. G. Shaw, Trustee's No. 1 C. Slaughter Dean	March 18	4,982-5,005	420 bbl., 24 hrs.	Big lime (Permian)	1	.....	Proven part of 3-well Dean pool
Pecos, Sec. 104, Blk. 10, H.&G.N. Sur., in Masterson pool, Anderson-Prichard Oil Co. and M. Warner's No. 1 Masterson	May 16	4,555-95	183 bbl., 24 hrs.	Ellenburger of Ord.	3	Apco	
Schleicher, Sec. 30, Blk. L, G.H.&S.A. Sur., Lone Star Gas Co.'s No. 1 Bert Page	June 20	5,727-47	158 bbl., 24 hrs.	Strawn	1	Page	Single oil well in 2-well gas pool
Ector, Sec. 1, Blk. A, P.S.L. Sur., ½ mile W of North Cowden field, Gulf Oil Corp.'s No. 1 Holt	June 27	5,148-61	217 bbl., 24 hrs.	Permian lime	3	Fromme	Deep horizon for N. Cowden pool
Pecos, Sec. 6, Blk. 10, H.&G.N. Sur., Culbertson & Irwin, Inc.'s No. 1 Ed Fromme	July 24	1,405-45	43 bbl., 24 hrs.	Yates sand (Permian)	5	.....	
Yoakum, Sec. 616, 2 mi. NE of Bennett area, Shell Oil Co., Inc.'s No. 1 Waples-Platter Co.	Aug. 5	5,276-5,380	162 bbl. fluid, 33% wtr.	Big lime (Permian)	1	Waples-Platter	
Pecos, Sec. 71, Blk. 10, H.&G.N. Sur., Leidecker & Cain's No. 1 Lehn	Aug. 22	1,686-1,783	13 bbl., 24 hrs.	Permian	11	Lehn	
Schleich, Sec. 41, Blk. LL, G.H.&S.A. Sur., Harold B. Opp's No. 1 J. T. Jackson	Sept. 1	4,049-61	25 bbl., 24 hrs.	Cisco sand	1	Opp	
Gaines, SW cor. Sec. 3, Blk. 30-C, P.S.L. Sur., Stanolind Oil & Gas Co.'s No. 1 J. B. Rayner	Sept. 4	4,661-4,769	1,279 bbl., 24 hrs.	San Andres (Perm.)	3	Cedar Lake	
Ward, Sec. 43, Blk. F, G.M.M.B.&A. Sur., Magnolia Petroleum Co.'s No. 2-43 Sealy	Nov. 13	2,905-32	Est. 70 mil. cu. ft. gas	Permian lime	1	.....	Well still drilling and testing

TEXAS PANHANDLE

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
GRAY COUNTY:													
Daily average	28,921	28,040	28,533	32,654	29,481	30,634	30,616	20,878	29,118	30,828	34,212	36,385	
Month	896,557	785,120	884,520	979,627	913,908	919,028	949,096	647,218	873,540	955,668	1,026,360	1,127,935	10,958,577
HUTCHINSON COUNTY:													
Daily average	22,059	22,041	22,621	24,496	23,759	24,050	24,662	15,960	23,027	24,272	27,019	26,408	
Month	683,828	617,148	701,256	734,882	736,524	721,505	764,522	494,760	690,810	752,432	810,570	818,648	8,526,885
CARSON COUNTY:													
Daily average	6,160	6,852	6,332	7,517	6,549	7,127	6,849	4,010	5,526	7,366	7,728	8,877	
Month	190,965	191,856	196,295	225,513	203,019	213,805	212,319	124,310	165,780	228,346	231,840	275,187	2,459,235
MOORE COUNTY:													
Daily average	1,192	1,285	1,256	1,276	1,301	1,355	1,410	1,025	1,205	1,148	1,066	1,176	
Month	36,952	35,984	38,938	38,274	40,331	40,653	43,710	31,775	36,150	35,588	31,980	36,456	446,791
WHEELER COUNTY:													
Daily average	5,646	5,475	5,311	6,512	5,829	6,755	5,937	4,927	5,011	6,590	8,205	8,618	
Month	175,026	153,297	164,644	195,361	180,712	202,643	184,047	152,737	150,330	204,290	246,150	267,158	2,276,395
Daily average	63,978	63,693	64,053	72,455	66,919	69,921	69,474	46,800	63,887	70,204	78,230	81,464	67,583
Total 1939	1,983,328	1,783,405	1,985,653	2,173,657	2,074,494	2,097,634	2,153,694	1,450,800	1,916,610	2,176,324	2,346,900	2,525,384	24,667,883
Total 1938	2,080,095	1,741,282	2,085,782	2,013,634	1,863,050	1,854,298	2,156,886	2,194,599	1,835,887	1,908,005	1,863,061	1,982,732	23,579,311
Total 1937	2,092,717	2,079,000	2,366,695	2,283,120	2,602,062	2,576,445	2,460,148	2,519,401	2,367,037	2,372,282	2,162,963	2,223,531	28,105,401
Total 1936	1,918,900	1,702,039	1,908,856	1,855,770	2,009,203	1,841,880	1,924,201	1,908,918	1,834,170	1,920,202	1,883,700	1,923,271	22,631,110
Total 1935	1,833,743	1,725,864	1,974,173	1,801,110	1,893,790	1,796,910	1,847,135	1,685,284	1,632,300	1,721,740	1,637,920	1,917,040	21,667,009

oil reserve. Several wildcat tests projected to the deep pay were drilling in widely separated areas of the county at the close of 1939.

Another of 1939's discoveries and of no little importance is the Fromme pool in northern Pecos County. Opened by Culbertson & Irwin, Inc.'s No. 1 Ed Fromme in July the field ended the new year with five producing wells and several in the process of drilling. Production is obtained from the Yates sand from 1,405 to 1,445 ft. The discovery well was located in Section 6, Block 10, H.&G.N. Survey.

A typical northern Pecos County field opened in August is the Lehn pool in Section 71, Block 10, H.&G.N. Survey, discovered by Leidecker & Cain's No. 1 Lehn. Production is from Permian sand at 1,686 to 1,783 ft. Showing rapid development there were at the close of 1939 11 producers and several drilling wells in the field.

Great activity was seen in the Wasson-Bennett area of Gaines and Yoakum counties. Starting out in 1939 with 107 wells in the Wasson-Denver area and 29 in the Bennett area, some 5 miles of unexplored land separated the main bodies of the two fields. The past year saw the complete joining of the areas into what has been named the Wasson field, with a total of 525 producing wells and a proven area of 48,000 acres, by far the largest field in West Texas.

Another district attracting considerable attention during the latter part of the year, and promising some of the major development this year, is the link area between the North Cowden, Goldsmith and Foster pools in central Ector County. Extension producers to the north of the Foster pool and in the Johnson area, as well as extension producers to the south from North Cowden, were completed almost weekly late in 1939.

Another area showing considerable drilling activity was the Seminole pool of Gaines County. Discovered in August 1937, only 10 wells had been drilled to the start of 1939. Nine new wells were added during the year past and a major drilling program outlined by almost every operator in the field for 1940.

In the Panhandle

Field activity in the Texas Panhandle showed a slight decline during the past year. No producing areas were opened and about 100 fewer completions were recorded than in 1938. Wildcatting activity continued in scattered sections of the district, the greater portion of it being restricted to the north of the Panhandle fields. Majority of drilling, however, was confined to inside, proven locations. Practically every county in the district had one or more wildcat failures during the year. As 1940 commenced several important wildcats were still in the drilling or testing stages.

WEST TEXAS

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas
Andrews	69	82,967	7	0
Brewster	1	0	1	0
Borden	1	0	1	0
Cochran	9	3,374	2	0
Coke	1	0	1	0
Concho	3	0	3	0
Crane	96	139,884	9	0
Crockett	33	3,638	6	0
Culberson	4	0	4	0
Crosby	1	0	1	0
Dawson	3	0	3	0
Ector	489	530,294	9	0
El Paso	1	0	1	0
Gaines	55	42,788	4	0
Garza	1	0	1	0
Glasscock	3	0	3	0
Hockley	31	26,945	0	0
Howard	71	40,775	11	0
Irion	1	0	1	0
Kent	2	0	2	0
Kimble	2	0	2	0
Loving	5	1,800	0	0
Lynn	1	0	1	0
Martin	1	0	1	0
Mitchell	1	0	1	0
McCulloch	3	0	2	1
Nolan	1	0	1	0
Pecos	200	77,503	34	0
Presidio	2	0	2	0
Reeves	5	44	3	0
Reagan	1	1,147	0	0
Schleicher	5	263	1	2
Scurry	27	3,820	3	0
Sterling	1	0	1	0
Sutton	2	0	2	0
Stonewall	5	435	3	0
Terrell	1	0	1	0
Tom Green	6	0	6	0
Upton	97	35,970	8	0
Ward	163	68,461	12	0
Winkler	112	50,555	3	1
Yoakum	354	353,506	6	0
Total 1939	1,870	1,464,169	163	4

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	158	120,678	11	1
February	150	113,644	18	0
March	117	112,655	11	0
April	148	114,701	11	0
May	178	113,509	16	0
June	137	110,214	9	2
July	147	94,057	22	0
August	145	115,160	14	1
September	179	144,652	11	0
October	206	153,023	17	0
November	148	128,777	14	0
December	157	143,099	9	0
Total 1939	1,870	1,464,169	163	4
Total 1938	2,045	1,568,254	241	16
Difference	175	104,085	78	12

TEXAS PANHANDLE

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas
Armstrong	1	0	1	0
Carson	60	17,912	2	16
Collingsworth	2	0	2	0
Deaf Smith	1	0	1	0
Dickens	1	0	1	0
Donley	2	0	2	0
Gray	144	48,469	3	8
Hartley	1	0	0	1
Hutchinson	150	45,746	2	16
Lipscomb	1	0	1	0
Moore	42	62	9	32
Motley	1	0	1	0
Potter	6	0	1	5
Roberts	4	0	4	0
Sherman	1	0	0	1
Wheeler	25	3,879	3	2
Total 1939	442	116,068	33	81

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	35	11,892	5	4
February	21	6,032	3	2
March	31	6,964	6	3
April	31	6,449	3	9
May	30	7,622	1	7
June	33	6,007	1	13
July	44	12,657	2	9
August	29	7,140	2	7
September	44	12,049	3	4
October	49	14,122	2	10
November	48	12,101	2	9
December	47	13,033	3	4
Total 1939	442	116,068	33	81
Total 1938	561	196,265	26	105
Difference	119	80,197	7	24

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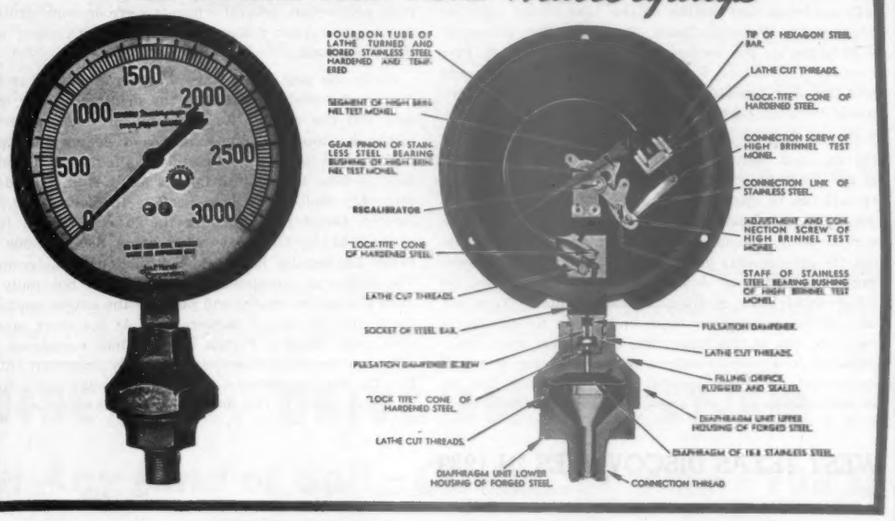
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SEGMENT OF HIGH BRINNEL TEST MONEL
GEAR PINION OF STAINLESS STEEL BEARING BUSHING OF HIGH BRINNEL TEST MONEL
RECALIBRATOR
"LOCK-TITE" CONE OF HARDENED STEEL
LATHE CUT THREADS
SOCKET OF STEEL BAR
PULSATION DAMPENER SCREW
"LOCK TITE" CONE OF HARDENED STEEL
LATHE CUT THREADS
DIAPHRAGM UNIT LOWER HOUSING OF FORGED STEEL
TIP OF HEXAGON STEEL BAR
LATHE CUT THREADS
"LOCK-TITE" CONE OF HARDENED STEEL
CONNECTION SCREW OF HIGH BRINNEL TEST MONEL
CONNECTION LINK OF STAINLESS STEEL
ADJUSTMENT AND CONNECTION SCREW OF HIGH BRINNEL TEST MONEL
STAFF OF STAINLESS STEEL BEARING BUSHING OF HIGH BRINNEL TEST MONEL
PULSATION DAMPENER
LATHE CUT THREADS
FILLING ORIFICE PLUGGED AND SEALED
DIAPHRAGM UNIT UPPER HOUSING OF FORGED STEEL
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WEST TEXAS

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
BENNETT:													
Daily average	3,303	3,463	3,094	3,437	3,080	3,067	3,051	1,699	3,838	3,906	3,732	4,092	
Month	102,408	96,976	95,906	103,101	95,491	92,019	94,578	52,671	115,127	121,078	111,965	126,852	1,208,172
CHURCH-FIELD:													
Daily average	4,886	4,784	4,874	5,179	5,065	5,059	5,322	2,874	4,969	5,057	5,157	5,220	
Month	151,457	133,956	151,107	155,383	157,012	151,762	164,985	89,099	149,080	156,779	154,710	161,820	1,777,150
COWDEN-CRANE:													
Daily average	1,288	1,296	1,240	1,151	1,118	1,119	987	598	1,047	976	959	1,169	
Month	39,940	36,288	38,427	34,544	34,672	33,559	30,593	18,526	31,415	30,258	28,758	36,239	393,219
COWDEN, NORTH:													
Daily average	7,866	7,221	7,678	7,745	9,172	8,862	10,336	5,566	10,368	10,075	7,692	11,014	
Month	243,853	202,219	238,011	232,366	284,327	265,853	320,424	172,545	311,043	312,323	230,758	341,434	3,155,156
COWDEN, SOUTH:													
Daily average	233	233	277	228	246	242	226	139	216	209	199	197	
Month	7,213	6,516	8,587	6,834	7,622	7,257	7,021	4,319	6,483	6,476	5,981	6,124	80,433
DEEP ROCK:													
Daily average	193	195	204	169	214	210	192	106	193	166	159	165	
Month	5,973	5,470	6,328	5,078	6,623	6,309	5,945	3,278	5,781	5,136	4,769	5,125	65,813
DUGGAN:													
Daily average	390	359	342	351	342	344	483	410	521	578	511	541	
Month	12,078	10,054	10,605	10,521	10,599	10,320	14,967	12,721	15,638	17,911	15,336	16,765	157,515
DUNE:													
Daily average	215	245	334	389	420	411	545	305	561	488	499	506	
Month	6,679	6,852	10,354	11,665	13,030	12,322	16,885	9,448	16,827	15,117	14,986	15,673	149,838
EAVES:													
Daily average	307	303	300	285	285	276	283	246	272	279	282	281	
Month	9,513	8,496	9,305	8,539	8,826	8,286	8,785	7,626	8,148	8,660	8,463	8,721	103,368
EMPEROR:													
Daily average	1,277	1,246	1,377	1,090	793	807	1,619	848	1,533	1,429	1,492	1,688	
Month	39,576	34,889	42,699	32,700	24,585	24,214	50,196	26,274	46,000	44,303	44,777	52,328	462,541
ESTES:													
Daily average	6,372	6,183	6,398	6,117	5,995	6,089	7,244	3,896	6,917	7,023	7,092	8,885	
Month	197,538	173,125	198,339	183,516	185,854	182,676	224,574	120,778	207,505	217,726	212,767	275,435	2,379,833
FOSTER:													
Daily average	7,208	7,356	7,687	7,987	7,930	7,519	7,899	4,798	8,710	9,148	9,081	10,114	
Month	223,460	205,923	238,284	239,603	245,838	225,570	244,865	148,746	261,312	283,575	272,427	313,534	2,903,137
FUHRMAN:													
Daily average	1,349	1,454	1,531	1,551	1,703	1,710	1,911	823	1,531	1,328	1,586	1,952	
Month	41,803	40,716	47,472	46,517	52,794	51,306	59,248	25,514	45,920	41,172	47,570	60,512	560,544
GOLDSMITH:													
Daily average	18,557	18,747	19,405	18,682	21,163	20,014	20,770	13,822	25,319	24,006	23,973	28,233	
Month	575,271	524,924	601,567	560,458	565,065	600,420	643,857	428,486	759,571	744,175	719,203	875,223	7,598,220
GULF-McELROY:													
Daily average	3,377	3,351	3,515	3,467	3,342	3,343	5,224	2,979	5,097	5,207	5,492	6,217	
Month	104,683	93,839	108,976	104,019	103,596	100,266	161,937	92,359	152,919	161,405	164,753	192,727	1,541,479
HALLEY:													
Daily average	422	390	414	388	444	440	411	219	384	344	330	327	
Month	13,071	10,918	12,832	11,649	13,776	13,206	12,728	6,793	11,533	10,650	9,894	10,121	137,171
HARPER:													
Daily average	7,727	7,599	7,619	6,974	5,424	5,116	4,891	2,617	4,616	4,136	3,848	4,786	
Month	239,538	212,784	236,182	209,232	168,156	153,480	151,614	81,140	138,476	128,206	115,453	148,366	1,982,627
HENDERSON:													
Daily average	2,620	2,654	2,545	2,706	2,628	2,590	2,456	1,319	2,214	2,210	2,275	2,662	
Month	81,207	74,309	78,888	81,180	81,482	77,711	76,129	40,887	66,430	68,511	68,240	82,522	877,496
HENDRICK:													
Daily average	10,412	10,126	10,224	10,032	9,598	9,080	9,122	8,851	9,040	9,134	8,736	10,375	
Month	322,781	283,527	316,941	300,963	279,543	272,391	282,776	274,385	271,190	283,144	262,075	321,625	3,489,341
HOWARD-GLASSCOCK:													
Daily average	13,778	13,304	13,914	14,117	15,372	15,262	15,885	8,658	15,694	15,439	15,465	16,688	
Month	427,133	372,523	431,344	423,497	476,531	457,849	492,430	268,412	470,811	478,602	463,944	517,328	5,280,404
IATAN-EAST HOWARD:													
Daily average	5,312	5,163	5,255	5,077	5,239	5,196	5,102	3,064	5,745	5,427	5,338	6,478	
Month	164,659	144,578	162,921	152,322	162,411	155,882	158,175	94,978	172,347	168,227	160,130	200,818	1,897,448
JORDAN:													
Daily average	2,407	2,445	2,636	2,537	2,646	2,641	3,480	1,872	3,553	3,169	3,202	3,765	
Month	74,628	68,463	81,709	76,102	82,036	79,236	107,883	58,036	106,589	98,247	96,058	116,715	1,045,702
KERMIT:													
Daily average	14,653	14,054	14,375	14,611	15,215	15,600	14,737	7,845	13,479	12,193	11,505	13,649	
Month	454,254	393,517	445,609	438,319	471,669	467,991	456,848	243,197	404,361	377,988	345,148	423,119	4,922,020
KEYSTONE:													
Daily average	1,613	1,611	1,758	1,678	1,539	1,563	1,917	1,040	1,890	1,949	2,056	2,149	
Month	49,999	45,103	54,502	50,349	47,711	46,887	59,417	32,254	56,696	60,427	61,692	66,619	631,656
KEYSTONE-COLBY:													
Daily average	1,556	1,617	1,839	1,833	1,892	1,877	2,652	1,427	2,594	2,423	2,424	2,769	
Month	48,243	45,273	57,007	54,992	58,639	56,311	82,214	44,231	77,821	75,101	72,720	85,839	758,391
LECK:													
Daily average	275	297	279	291	262	252	301	268	282	346	324	327	
Month	8,539	8,314	8,652	8,729	8,132	7,569	9,318	8,297	8,458	10,721	9,727	10,124	106,580
MASON:													
Daily average	262	256	261	215	262	262	243	122	237	373	235	294	
Month	8,115	7,168	8,099	6,460	6,735	7,858	7,538	3,793	7,101	11,572	7,036	9,121	90,596
MASTERSON:													
Daily average	340	327	268	286	257	260	271	143	233	207	196	198	
Month	10,544	9,161	8,300	8,588	7,955	7,802	8,407	4,445	6,997	6,429	5,873	6,121	90,622
McCLINTIC:													
Daily average	1,000	992	1,080	1,039	1,012	1,002	1,235	681	1,189	1,112	1,096	1,178	
Month	30,998	27,784	33,484	31,171	31,398	30,058	38,295	21,101	35,669	34,472	32,882	36,518	383,830
MEANS:													
Daily average	2,550	2,631	2,867	2,782	2,781	2,766	2,681	1,465	2,699	2,551	2,569	2,721	
Month	79,044	73,679	88,865	83,457	86,199	82,980	83,124	45,412	80,973	79,070	77,084	84,351	944,238
NETTERVILLE:													
Daily average	172	181	173	154	156	152	153	88	142	134	123	129	
Month	5,334	5,071	5,378	4,614	4,842	4,560	4,757	2,718	4,258	4,145	3,698	4,012	53,387
PAYTON:													
Daily average	2,116	2,267	2,852	2,774	2,601	2,588	3,907	2,165	3,938	3,674	3,507	3,956	
Month	65,601	63,465	88,400	83,209	80,620	77,644	122,111	67,120	118,139	113,901	105,225	122,636	1,108,071
PECOS VALLEY:													
Daily average	1,197	1,376	1,484	1,342	1,383	1,382	1,285	822	1,350	1,374	1,421	1,560	
Month	37,095	38,541	46,005	40,257	42,878	41,456	39,826	25,477	40,515	42,599	42,628	48,360	485,637
PENWELL:													
Daily average	3,504	3,433	3,513	3,377	3,831	3,817	4,243	2,271	3,986	3,524	3,676	3,967	
Month	108,628	96,121	108,901	101,308	118,749	114,510	131,532	70,392	119,587	109,237	110,273	122,977	1,312,215
SAND HILLS:													
Daily average	1,283	1,316	1,343	1,274	1,456	1,459	1,377	738	1,451	1,657	1,882	2,200	
Month	39,782	36,860	41,647	38,226	45,134	43,770	42,690	22,893	43,254	51,382	56,458	68,200	530,296
SCARBOROUGH:													
Daily average	1,847	1,875	1,953	1,869	1,849	1,840	1,612	871	1,476	1,393	1,370	1,975	
Month	57,251	52,514	60,532	56,064	57,319	55,196	49,958	27,009	44,278	43,176	41,097	61,225	605,619
SEALEY:													
Daily average	327	276	317	297	317	312	443	205	334	230	305	330	
Month	10,140	7,724	9,831	8,904	9,842	9,364	13,728	6,343	10,027	7,125	9,167	10,225	112,420
SEMINOLE:													
Daily average	506	437	498	445	426	430	410	245	499	549	719	660	
Month	15,700	12,225	15,453	13,353	13,220	12,904	12,715	7,598	14,968	17,011	21,583	20,469	177,199
SHEARER:													
Daily average	999	1,049	1,370	1,427	1,167	1,182	1,412	791	1,583	1,534	1,466	1,688	
Month	30,963	29,373	42,463	42,811	36,169	35,466	43,786	24,520	47,489	47,543	43,968	52,328	476,879
SHIPLEY:													
Daily average	1,248	1,223	1,273	1,393	1,374	1,366	1,305	694	1,255	1,152	1,171	1,498	
Month	38,700	34,257	39,478	41,790	42,593	40,977	40,452	21,514	37,636	35,724	35,142	46,438	454,701
SLAUGHTER:													
Daily average	744	767	873	793	1,084	1,007	1,798	922	2,165	2,235	1,845	2,341	
Month	23,050	21,465	27,050	23,793	33,598	30,210	55,745	28,597	64,949	69,300	55,348	72,571	505,676
SNYDER:													
Daily average	1,858	1,889	2,034	2,318	2,465	2,475	2,382	1,279	2,296	2,291	2,096	2,540	
Month	57,607	52,895	63,043	69,544	76,409	74,244	73,827	39,642	68,880	71,019	62,879	78,740	788,729

(Continued on Next Page)

WEST TEXAS (Continued)

Daily Average and Monthly Production in 1939

	January (bbl.)	February (bbl.)	March (bbl.)	April (bbl.)	May (bbl.)	June (bbl.)	July (bbl.)	August (bbl.)	September (bbl.)	October (bbl.)	November (bbl.)	December (bbl.)	Ttl. 1939 (bbl.)
TAYLOR-LINK:													
Daily average	1,184	1,229	1,344	1,436	1,523	1,517	1,422	1,180	1,654	1,713	1,816	1,946	
Month	36,694	34,409	41,678	43,078	47,226	45,511	44,090	36,573	49,614	53,097	54,489	60,326	546,785
TOBARG:													
Daily average	1,545	1,480	1,694	1,797	1,747	1,736	1,715	1,406	1,774	1,723	1,735	1,814	
Month	47,896	41,445	52,523	53,917	54,158	52,072	53,159	43,576	53,215	53,428	52,042	56,234	613,665
WADDELL:													
Daily average	1,086	1,088	1,166	1,095	999	1,007	1,378	759	1,317	1,638	1,704	1,797	
Month	33,662	30,459	36,134	32,839	30,963	30,221	42,717	23,528	39,509	50,763	51,120	55,707	457,622
WARD, NORTH:													
Daily average	5,397	5,319	5,476	5,038	5,126	5,118	6,256	3,272	5,785	6,344	6,438	6,732	
Month	167,301	148,937	169,767	151,149	158,914	153,533	193,936	101,446	173,495	196,672	193,126	208,692	2,016,968
WARD, SOUTH:													
Daily average	7,759	7,449	7,366	6,646	6,817	6,779	6,476	3,544	6,451	5,674	5,412	6,479	
Month	240,518	208,569	228,358	199,369	211,332	203,370	200,764	109,866	193,545	175,885	162,360	200,849	2,334,785
WASSON:													
Daily average	9,013	9,312	9,650	10,283	10,785	10,762	12,750	7,428	17,329	17,914	19,033	20,392	
Month	279,392	260,720	299,156	308,503	334,347	322,862	395,240	230,270	519,873	555,325	570,999	632,152	4,708,839
WESTBROOK:													
Daily average	693	636	696	730	724	715	677	352	659	636	621	626	
Month	21,477	17,818	21,578	21,892	22,449	21,454	21,000	10,921	19,760	19,705	18,646	19,400	236,100
WHEAT:													
Daily average	1,224	1,179	1,170	1,228	1,175	1,182	1,123	720	1,177	1,072	1,073	1,181	
Month	37,931	33,001	36,266	36,832	36,416	35,466	34,829	22,308	35,325	33,237	32,196	36,611	410,418
YATES:													
Daily average	19,885	19,172	19,804	20,595	23,062	22,914	25,994	13,839	24,578	22,768	22,291	25,301	
Month	616,424	536,829	613,905	617,852	714,919	687,427	805,814	429,022	737,349	705,821	668,721	784,344	7,928,427
BIG LAKE:													
Daily average	6,646	6,667	6,420	6,659	6,448	6,460	6,326	6,325	6,487	6,272	6,216	6,892	
Month	206,030	186,677	199,026	199,778	199,894	193,800	196,104	196,078	194,603	194,424	186,475	213,652	2,366,541
McCAMEY:													
Daily average	13,811	13,559	13,824	15,049	13,256	12,518	13,657	7,568	13,395	12,121	13,182	14,949	
Month	428,139	379,639	428,544	451,456	410,950	405,549	423,370	234,615	401,845	375,766	395,465	463,419	4,798,757
WORLD:													
Daily average	1,000	983	1,007	989	933	916	944	739	883	955	1,000	1,033	
Month	31,007	27,538	31,214	29,680	28,910	27,476	29,268	22,897	26,504	29,614	29,985	32,023	346,116
EMMA:													
Daily average	.....	768	940	989	793	784	836	461	898	846	928	1,057	
Month	.....	21,511	29,142	29,766	24,585	23,525	25,930	14,281	26,954	26,241	27,836	32,767	282,538
MAGNOLIA-SEALY:													
Daily average	.....	.....	.....	455	465	502	469	256	522	455	477	552	
Month	.....	.....	.....	13,646	14,428	15,062	14,547	7,934	15,646	14,098	14,305	17,112	126,778
MISCELLANEOUS POOLS:													
Daily average	909	917	1,000	955	1,128	1,121	1,434	1,003	1,836	2,063	2,255	2,228	1,407
Month	28,185	25,679	30,995	28,641	34,965	33,639	44,450	31,104	55,082	63,961	67,664	69,074	513,442
Daily average	207,700	205,753	212,832	213,704	215,553	216,020	233,261	138,645	240,151	232,828	231,269	264,663	217,724
Total 1939	6,438,705	5,761,086	6,597,799	6,414,125	6,682,136	6,480,616	7,232,101	4,297,993	7,204,520	7,217,660	6,938,074	8,204,556	79,469,341
Total 1938	5,710,776	5,115,958	5,936,660	5,908,270	5,596,757	5,416,811	6,393,727	6,578,700	5,769,279	6,203,455	6,160,270	6,466,878	71,257,541
Total 1937	5,405,968	5,391,326	6,579,662	6,145,724	6,609,318	6,385,562	6,321,050	7,401,923	6,722,469	6,502,608	5,810,106	6,013,245	75,288,961
Total 1936	4,553,683	4,423,051	5,162,895	5,187,630	5,444,065	5,060,640	5,214,076	5,340,215	4,850,340	5,291,607	4,613,850	5,187,013	60,329,065

Miscellaneous pools and their total production for the 12-month period were: Carter 10,133 bbl., Dean 22,364 bbl., Dobbs 2,341 bbl., Edwards 2,443 bbl., Sarza 5,166 bbl., Johnson 26,006 bbl., Monroe 7,269 bbl., Moore 17,753 bbl., Northwest 72,098 bbl., Parker 9,659 bbl., Swenson 504 bbl., West 8,682 bbl., White & Baker 32,525 bbl., Beddo 2,897 bbl., Crockett 87,256 bbl., Grayson 38,692 bbl., Herrington 17,840 bbl., Hurdle 38,673 bbl., Irion 5,411 bbl., McMillan 22,437 bbl., Simpson 1,455 bbl., Webb-Ray 10,271 bbl., Richards 1,265 bbl., Anthony 1,523 bbl., Apco 22,600 bbl., Wapples-Platter 9,282 bbl., Page 6,516 bbl., Fromme 9,391 bbl., Lehn 18,105 bbl., Opp 1,502 bbl., Cedar Lake 1,380 bbl.; total, 513,442 bbl.

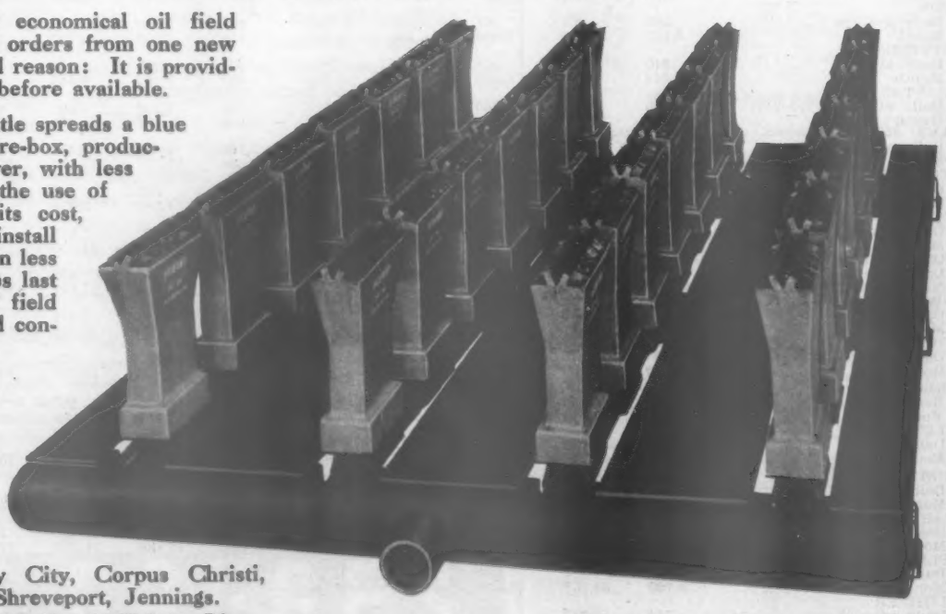
REAGAN *Improved* Low Pressure GAS BURNER

Assures you MAXIMUM STEAM *at* MINIMUM COST, *Plus* LONGER LIFE *for your* BOILERS!

This simple, long-life, and economical oil field burner continues to get repeat orders from one new user after another, and for good reason: It is providing burner performance never before available.

The patented V-shaped mantle spreads a blue flame throughout the entire fire-box, producing maximum boiler horse-power, with less fuel consumption and without the use of stack blowers. It is paying its cost, and more, in fuel saving. You install it in 30 minutes. You clean it in less than five minutes. The mantles last indefinitely, despite hardest oil field treatment, due to heavy, rugged construction.

The Reagan Burner is sold in all standard boiler sizes. A handy pocket size folder tells the whole story. Write *today* for your copy.



HUNT TOOL COMPANY

Houston, Bay City, Corpus Christi, Houma, Shreveport, Jennings.

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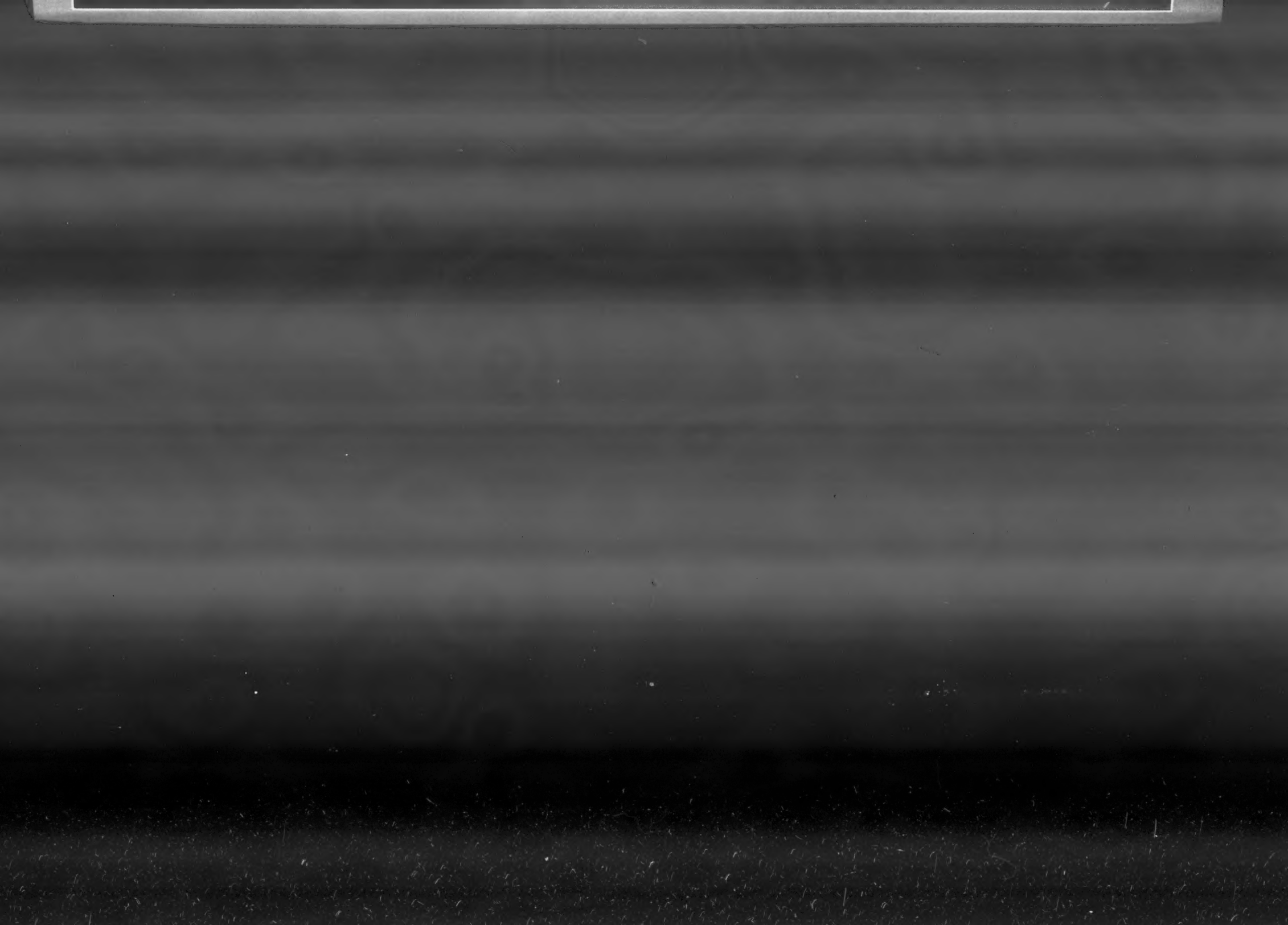

Engineers Highly Endorse
JARECKI BRONZE VALVES

Fig. 481—JARECKI "Extreme Service" Bronze Gate Valve, for Refinery and Natural Gasoline Plant service; 200 lbs. S.W.P., 400 lbs. O.W.G.

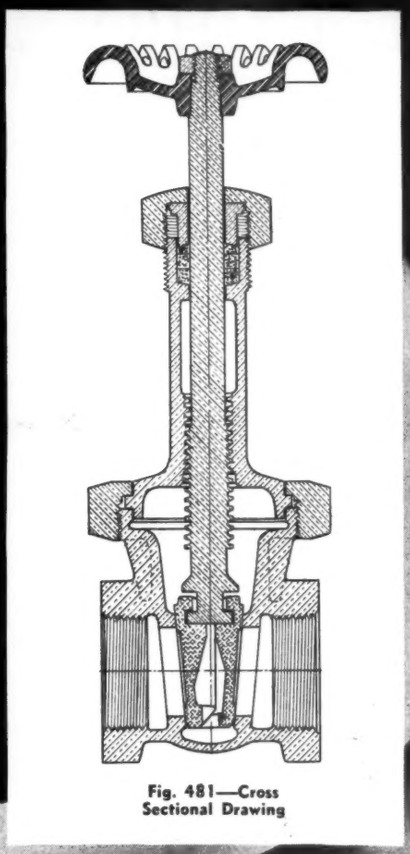

Fig. 481—Cross Sectional Drawing

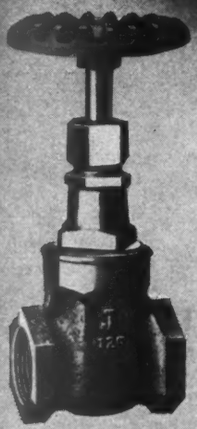

Fig. 450
Standard Bronze
Gate Valve

OIL INDUSTRY engineers who know JARECKI Valves from actual experience, universally endorse them. There are thousands of competent engineers in the oil industry who not only specify JARECKI Valves consistently, but highly recommend them to others, because they have seen them measure up, year after year, to every engineering standard of excellence.

Consider, for example, materials in the JARECKI Bronze Gate Valve, shown above. Body and bonnet are of hard bronze, high in tin content, of 36,000 lbs. tensile strength and 17,000 lbs. yield point. Nickel bronze self-seating discs have minimum Brinell Hardness Number 172, and 45,000 lbs. tensile strength. Manganese bronze stem has tensile strength of 70,000 lbs.

JARECKI manufactures a complete line of Bronze Gate Valves, Globe Valves, Cocks and Fittings. Ask for Catalog 34.

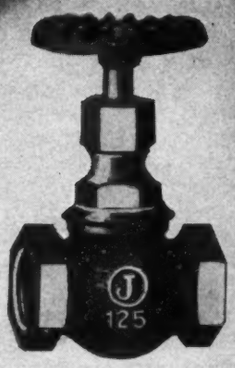

Fig. 414
Heavy Standard
Bronze Globe Valve

Fig. 426
Heavy Standard
Bronze Check Valve

Jarecki
MANUFACTURING COMPANY
"Since 1852"

Fig. 424
Bronze Regrinding
Swing Check Valve

General Offices: St. Louis, Mo. Home Office and Factory: Erie, Pa., U. S. A.
District Offices: Pittsburgh, Pa.; Tulsa and Bartlesville, Okla.; Dallas and Houston, Texas; Mt. Pleasant, Mich.; Centralia, Ill.
Branch Stores at All Important Places in the Oil Country.

Annual Review

EASTERN AND WESTERN KENTUCKY, INDIANA, OHIO, EASTERN FIELDS

WESTERN KENTUCKY

Summary of Wells Completed in 1939

Field—	Comp.	Prod.	Dry	Gas
Breckinridge	21	18	13	1
Butler	41	335	23	0
Christian	5	0	5	0
Daviess	181	8,692	77	1
Hancock	44	34	30	10
Henderson	42	3,092	24	2
Hopkins	7	240	5	1
Logan	2	0	2	0
McLean	28	598	14	1
Muhlenberg	17	520	10	0
Ohio	116	563	67	5
Todd	3	0	1	2
Union	4	0	4	0
Webster	6	0	4	2
Caldwell	1	0	1	0
Grayson	2	0	1	1
Total 1939	520	14,092	281	26

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	36	971	26	1
February	24	1,196	9	3
March	48	853	30	3
April	30	2,078	15	0
May	42	1,364	20	4
June	56	1,208	33	3
July	55	1,415	29	2
August	44	960	24	1
September	33	821	17	1
October	51	737	25	3
November	59	1,113	31	4
December	42	1,376	22	1
Total 1939	520	14,092	281	26
Total 1938	655	40,789	281	40
Difference	135	26,697	0	14

EASTERN KENTUCKY

Summary of Wells Completed in 1939

Field—	Comp.	Prod.	Dry	Gas
Wolfe	6	0	6	0
Powell	42	255	6	0
Magoffin	4	10	3	0
Lee	21	231	6	0
Knott	26	0	2	24
Floyd	48	38	2	45
Martin	27	211	0	20
Pike	32	0	4	28
Knox	4	0	2	2
Rowan	2	0	0	2
Estill	2	10	0	0
Total 1939	214	755	31	121

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	9	43	1	4
February	14	46	3	8
March	13	16	2	7
April	13	110	2	5
May	20	77	5	7
June	27	83	3	14
July	28	126	3	17
August	20	49	3	14
September	29	79	5	17
October	20	25	2	17
November	11	63	1	3
December	10	38	1	8
Total 1939	214	755	31	121
Total 1938	269	2,244	33	86
Difference	55	1,489	2	35

CENTRAL AND SOUTHEASTERN OHIO

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas
Ashland	19	61	5	7
Athens	106	167	26	58
Belmont	5	0	4	1
Carrol	10	0	4	6
Columbiana	10	1	8	1
Coshocton	14	752	2	2
Cuyahoga	31	85	5	24
Fairfield	19	66	6	11
Gallia	4	0	1	3
Geuga	2	0	2	0
Guernsey	47	11	18	25
Harrison	3	0	3	0
Hocking	12	80	5	3
Holmes	22	13	10	11
Huron	1	0	1	0
Jackson	4	0	1	3
Jefferson	14	27	5	6
Knox	52	147	23	24
Lake	1	0	1	0
Lawrence	11	0	3	8
Licking	126	759	34	67
Lorain	17	82	6	8
Mahoning	2	0	2	0
Medina	71	570	21	17
Meigs	39	0	14	25
Monroe	36	14	9	22
Morgan	20	29	11	5
Muskingum	34	120	12	14
Noble	72	32	19	50
Perry	36	197	17	13
Richland	4	0	3	1
Stark	29	0	5	24
Summit	8	0	2	6
Tuscarawas	10	0	5	5
Vinton	2	0	1	1
Washington	96	122	35	41
Wayne	6	80	2	2
Total 1939	995	3 415	331	494

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	63	59	24	34
February	62	62	19	34
March	51	286	14	26
April	73	75	25	39
May	80	289	24	43
June	87	531	27	44
July	90	245	27	49
August	110	443	36	51
September	91	393	35	45
October	113	405	46	43
November	96	376	30	46
December	79	251	24	40
Total 1939	995	3,415	331	494
Total 1938	876	3,999	275	423
Difference	119	584	56	71

LIMA FIELD

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas
Adams	1	0	1	0
Allen	2	5	1	0
Auglaize	3	0	3	0
Brown	1	0	1	0
Greene	1	0	1	0
Hancock	2	0	2	0
Henry	4	13	1	0
Logan	1	0	0	1
Preble	1	0	1	0
Putnam	6	25	1	1
Seneca	7	10	4	0
Wood	3	0	2	1
Wyandot	5	37	3	0
Total 1939	37	90	21	3

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	4	0	3	1
February	0	0	0	0
March	5	2	4	0
April	2	2	1	0
May	4	6	3	0
June	3	5	2	0
July	3	5	1	1
August	2	0	1	1
September	2	35	0	0
October	1	0	1	0
November	8	18	4	0
December	3	17	1	0
Total 1939	37	90	21	3
Total 1938	34	269	13	10
Difference	3	179	8	7

SUMMARY OF COMPLETIONS IN OHIO FOR 1939

Field—	Comp.	Prod.	Dry	Gas
Central and southeastern	995	3,415	331	494
Lima	37	90	21	3
Total 1939	1,032	3,505	352	497
Total 1938	910	4,268	288	433
Difference	122	763	64	64

INDIANA

Summary of Wells Completed in 1939

County—	Comp.	Prod.	Dry	Gas
Adams	1	2	0	0
Blackford	3	0	3	0
Cass	2	0	2	0
Clay	1	0	1	0
Decatur	4	0	1	3
Delaware	1	0	1	0
Daviess	10	5	8	1
Dubois	3	0	3	0
Gibson	115	16,354	26	2
Grant	1	0	1	0
Hancock	3	0	1	2
Huntington	4	9	2	0
Harrison	1	0	1	0
Jay	4	20	2	0
Jasper	1	10	0	0
Jackson	1	0	1	0
Knox	13	15	12	0
Marion	3	0	1	2
Martin	5	0	5	0
Monroe	1	0	1	0
Owen	1	0	1	0
Pike	16	3	10	1
Perry	3	0	2	1
Posey	66	10,118	19	1
Randolph	1	0	1	0
Spencer	42	226	17	15
St. Joseph	1	0	1	0
Sullivan	19	32	10	4
Vanderburgh	22	214	12	0
Vigo	9	410	3	0
Warrick	7	36	5	1
Shelby	2	0	0	2
Tipton	1	0	1	0
Blackford	1	0	1	0
Henry	3	0	1	2
Total 1939	371	27,454	156	37

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	11	75	4	4
February	7	592	5	1
March	12	198	4	4
April	18	165	10	2
May	32	1,054	19	1
June	21	3,031	8	2
July	27	2,044	13	2
August	58	5,589	24	4
September	41	4,323	15	2
October	46	4,308	15	5
November	51	2,895	18	7
December	47	3,180	21	5
Total 1939	371	27,449	156	37
Total 1938	158	1,711	69	43
Difference	213	25,738	87	6

EASTERN FIELDS

Summary of Wells Completed in 1939

Field—	Comp.	Prod.	Dry	Gas
Bradford	2,114	37,888	3	0
Allegany	710	849	0	0
Middle district	135	149	8	10
North Oriskany	114	....	64	48
Butler-Armstrong	71	138	25	5
SW Pennsylvania	210	241	48	137
SE Ohio	419	2,894	84	152
W. Virginia	619	1,956	90	419
Total	4,392	44,115	322	771

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	250	1,275	27	50
February	236	1,366	17	50
March	260	920	16	44
April	299	12,867	21	48
May	249	8,544	18	59
June	377	12,788	18	68
July	358	882	31	69
August	396	1,089	34	67
September	442	1,031	35	87
October	434	1,230	29	71
November	523	1,369	40	95
December	468	756	36	63
Total, 1939	4,392	44,115	322	771
Total, 1938	3,660	13,810	314	698
Difference	732	30,305	8	73

EXPORTS

(Continued from Page 80)

offset by an increase of 33 per cent in crude transfers totaling 833,000 bbl. for the year.

An insignificant increase of 54,000 bbl. is shown for "other petroleum products" consisting of solvents and asphalt cutbacks.

All of the principal East Coast ports figured in the increased traffic from California. Receipts at New York and Philadelphia more than doubled while those at "other" terminals covering Savannah, Ga., Portland, Me., Falls River, Mass., and Providence, R. I., were higher by almost an equal margin.

For the first time in 6 years, Gulf Coast ports received California petroleum.

The 1939 shipments of California products to East Coast ports were the highest since 1935 but remain considerably lower than in 1934 when 26,827,000 bbl. figured in the eastbound petroleum traffic.

Efficient operation of modern natural-gasoline plants may be attributed to a large extent to planning on the part of engineers concerned with design of equipment and plant construction. In this view can be seen part of the accumulator tank, ends of oil exchangers, liquid-level controls, oil preheater, and storage tanks at a recently completed plant of a major company. A distinctive feature of this plant is the fact that nearly all the piping has been placed overhead

ENGINEERING & OPERATING

JANUARY 25, 1940

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Completion of a gas trunk line from Louisiana across the Mississippi River to connect with the system of a major organization supplying southeastern states is an example of rapid pile-line construction undertaken at short notice in the face of a peculiar set of conditions.

REPAIR LONG STRING OF TUBING UNDER HIGH-PRESSURE FLOWING ..... Page 201

In spite of unusual handicaps and hazards repairs were made on the tubing string of the world's deepest flush-producing well which is located in coastal Louisiana.

SHELL AND COLTEXO COMPLETE BUTANE PLANT IN WEST TEXAS ..... Page 208

In the Wasson-Bennett field a plant has been recently put in operation to recover 95 per cent butanes. Production from the plant is shipped through pipe lines, mixed with crude. The plant has been designed to operate with a high degree of operating efficiency.

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United Gas Pipe Line Co.'s Vicksburg bridge crossing of Mississippi River, showing two 14-in. lines strung along north side of bridge. Inset shows special roller hanger for pipe. Two lines, one above the other, pushed across bridge on these rollers

United Gas Ado p Monroe-Jackson

By NEIL WILLIAMS

HOW, through modern practices and facilities, major pipe-line projects can be undertaken and carried out rapidly without months of planning and preliminary arrangements, has been demonstrated in the laying by United Gas Pipe Line Co. of its new gas line recently placed in operation from Monroe, La., to connect with its Mississippi-Alabama-Florida system near Jackson, Miss. Ability of this company to coordinate its efforts, design the line, make its preliminary surveys, select and obtain the right-of-way, provide for the pipe, other materials and adequate equipment for the work, and then push the project to a successful conclusion in the comparatively short period in which it was done, represents an outstanding achievement.

When the project was started the company was faced with a time element that made early completion of the line essential. Due to decline of the available gas supply in the Jackson field, additional sources of supply had to be provided quickly to meet winter-load requirements of the company's Jackson-Mobile-Pensacola gas-line system, which previously had depended entirely upon the Jackson field.

The project consisted of two parts. The Monroe-Jackson line, totaling 125 miles, was the main part. This was laid with 18-in. 47.39-lb. pipe, except river and stream crossings. The western terminus of this line is the company's Sterlington booster station in the Monroe field, from which a short extension was laid to a connection with Arkansas-Louisiana Gas Co.'s 20-in. line from northwest Louisiana, through which gas for the new United line is transported

As the other part of the United's project, 31.6 miles of gathering line, serving the Lake Bisteneau, Sligo and Sibley fields, northwestern Louisiana (Shreveport area) was required. This system includes 17.8 miles of 20-in. 59.23-lb. pipe extending from Koran, between the Lake Bisteneau and Sligo fields, to a connection with the Arkansas-Louisiana Gas Co.'s 20-in. main line to Monroe; 7.4 miles of 14-in. line from the Sligo field to Koran; 4.6 miles of 8-in. line from the Lake Bisteneau field to Koran, and 1.8 miles of 4-in. line from the Sibley field to a connection with the 20-in. line.

Completing the project, a 1,920-hp. compressor station was built at Jackson, this including 12,160 hp. engines and compressors. Previously, the Jackson-Mobile-Pensacola system had been fed by well pressure. The equipment was transferred from other stations. The Sterlington station at Monroe was constructed in 1930.

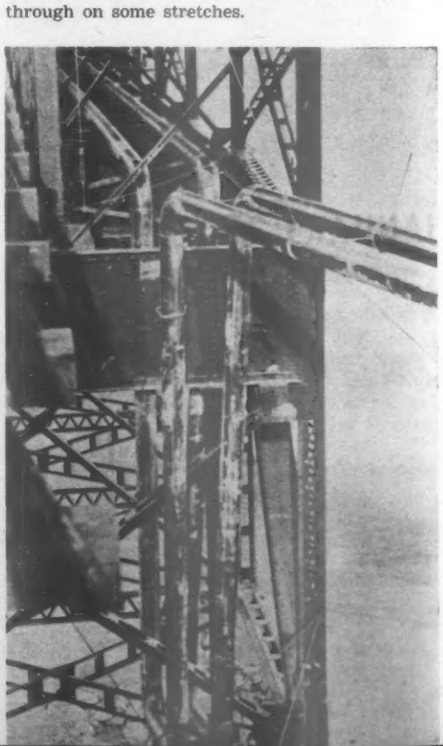
In view of the unfavorable terrain traversed by most of the main line, and other difficulties encountered, the speed made in completing the line was particularly noteworthy. Approximately half of the Louisiana portion of the line from Monroe to the Mississippi River at Vicksburg, a little over 73 miles, is through densely-wooded country, much of it being Mississippi River overflow land. On the Mississippi side the first 15 miles east is extremely rugged and broken country which created unusually difficult problems. The remainder of the line to Jackson is through rolling but not objectionable pipe-line country.

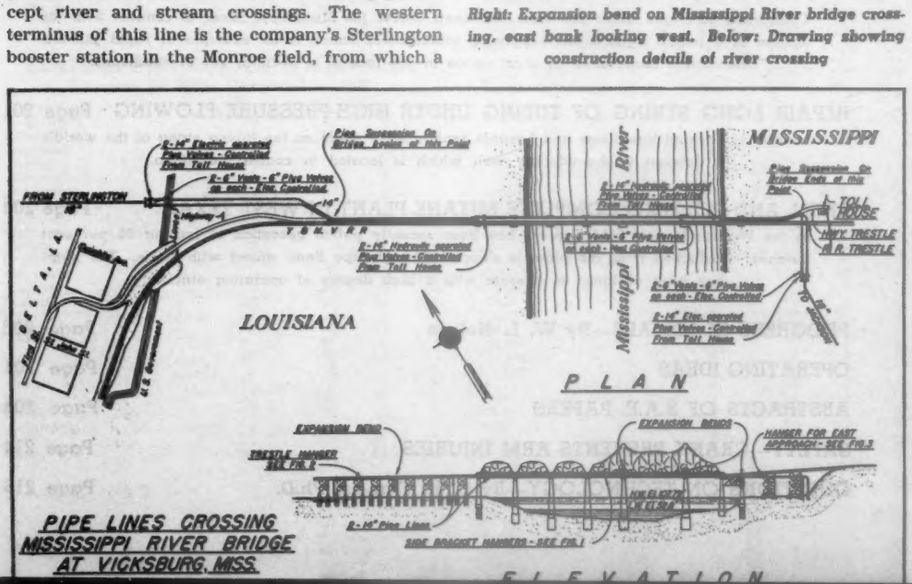
Swung well to the south of a direct line from Monroe to Jackson to permit crossing the Mississippi River at Vicksburg, the route misses some of the more densely wooded and lower sections of country. Preliminary surveys of possible right-of-ways indicated the present route to be generally the highest and on the whole the most favorable. Also, an attempt to cross the river farther north of Vicksburg would have been extremely difficult, if not out of the question.

Crossing of the river was made on the Vicksburg highway toll bridge, although the routing of the line to that point was not specially for that purpose. The feasibility of crossing on the bridge was considered in plans but pending negotiations with owners of the bridge, surveys were made and preparations went ahead for making a submarine crossing. Satisfactory arrangements, however, were made with bridge owners in time, and engineering phases and design of the crossing were worked out jointly by company engineers and consulting engineers representing the bridge owners. The design and construction embrace various innovations for such types of crossings, including special precautionary safety features. These will be described later.

Although the time for laying the line was not selected for favorable weather conditions, it happened that during the period of construction the swamps were the driest and streams the lowest they had been in many months, if not years, with rainfall throughout the area having been far below normal. This facilitated the work and made possible faster time than originally had been planned, permitting contractors to complete the project about 10 days ahead of schedule. Had the project been delayed a week or two conditions would have been entirely different, and extreme difficulty might have been experienced in getting through on some stretches.

Right: Expansion bend on Mississippi River bridge crossing, east bank looking west. Below: Drawing showing construction details of river crossing





PIPE LINES CROSSING MISSISSIPPI RIVER BRIDGE AT VICKSBURG, MISS.

pts Unique Practices in Pipe Line

Once it was decided to lay the line, every attention of the company was concentrated on pushing the project to completion. General contract was let to Brown & Root, Inc., September 23. Only 3 days later, clearing of right-of-way was started, and on the following day first pipe was received and work of laying the line started. The last joint on the main line was laid November 16, just 52 days after the first pipe was received. Completing river and stream crossings and testing the line took until December 5, when the final test was made.

Full operation, however, was delayed pending completion of the gathering system serving the Lake Bisteneau, Sligo and Sibley fields where the gas was to be obtained. On this project the first pipe was not received until October 31; it was placed in operation December 16.

Contractors, to push completion of the project, sublet contracts for much of the work, and on the main line ran four entirely complete crews simultaneously from the beginning, each having full equipment for clearing, ditching, stringing, coating and laying, as well as for making stream and road crossings. One crew started at the Monroe end, working east; the next crew also working eastward, started at Waverly, 42½ miles east of Monroe; a third worked eastward from Vicksburg, 31 miles east of Waverly, while the fourth started at the Jackson end and worked west to meet the Vicksburg crew. Over all, the average progress on the line was 2½ miles per day. The Waverly crew laid the Mississippi River crossing.

Getting pipe delivery promptly and in adequate volume was an important factor in the progress of the line. All pipe was shipped in by rail, being unloaded at convenient rail points along the line, from which it was hauled by truck to location and strung. Shipments of pipe were so rapid that contractors were pushed to unload the trains and move the pipe.

An idea of the large scale upon which the operations were carried on is given in a partial list of some of the more important items of equipment on the job. This included 19 boom tractors, seven tow tractors, six bulldozers, two angle dozers, two high-lift shovels, six ditchers, four backfillers, 24 paint kettles, 24 electric generators, four cleaning machines, four paint machines and five draglines.

Practically all ditching was done by ditching machines despite the fact that much of the right-of-way was through swamp. This was made possible by the comparatively dry conditions that existed. Normally, with the swamps and low land under water longer it would have been necessary to dig stretches by hand labor.

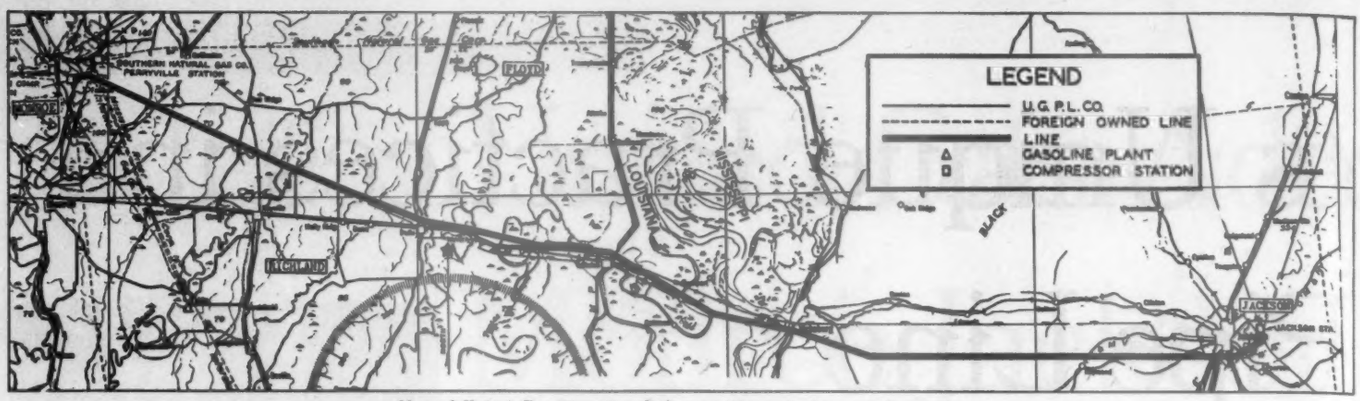
The line was laid in electrically welded sections coupled with Dresser couplings. The length of the welded sections between long-sleeve Dresser couplings averaged 4,000 ft.; this was because of the extremely rugged and rough country in that section. The first 9 miles west of Jackson (east end of line) was laid in 1,000-ft. welded sections joined with long-sleeve Dresser couplings. This country is gently rolling. Generally, plans called for laying the Louisiana portion of the line in three or four joint-welded sections joined with short-sleeve Dresser couplings, but due to so many swamps, the length of the sections often was increased to as much as 1,000 ft., using long-sleeve Dresser couplings.

In the gathering-line system serving the Lake Bisteneau, Sligo and Sibley fields, the 14-in., 8-in. and 4-in. pipe was laid solidly welded. The 20-in. main line was laid in three and four joint-welded sections, coupled.

Pipe was received bare and then coated on the line before lowering. A 25-mile section of the

Right: Riprapping placed to protect backfills against erosion on section of United's Monroe-Jackson line. The section is through rugged country just east of Mississippi River. Below: Bend made by oxyacetelene method

Above: Pushing lath-protected pipe section across Bouef River on United's gathering-line system serving Lake Bisteneau, Sligo and Sibley fields, from which gas is drawn for company's new Monroe-Jackson line. Left: Crossing of Pearl River, Mississippi



Map of United Gas Pipe Line Co.'s new Monroe-Jackson gas-line system

line extending eastward from the Mississippi was laid entirely bare. A soil analysis survey which had been made along the entire right-of-way showed that this section required no coating. The remainder of the line was given one coat of coal-tar enamel. Couplings, and river and stream crossings also were asbestos-felt wrapped.

Coating was done with traveling coating machines pushed along the pipe by hand. Holiday detectors were run to check the coating job for holidays. All pipe bends were made by the oxyacetylene method. The line was tested with gas pressure in a 24-hour shut-in test with an average pressure of 500 lb.

Eleven river and stream crossings, in addition to the Mississippi River, had to be made on the main line project. These ranged in length from 210 to 600 ft., with water depths running from 5 to 25 ft. Of these crossings four were classed as navigable streams, including the Black and Pearl rivers in Mississippi, and the Boeuf River and Bayou Bacon in Louisiana. On the gathering line project there were two major crossings, Dauchite Bayou, a navigable stream, a 600-ft. crossing, and Lake Bisteneau, 3,000 ft. wide at the crossing point. For crossing of navigable streams, permits were required from the federal Government and special regulations had to be followed.

All crossings on the main line were of the multiple type. On six crossings, two 14-in. lines were laid; on two, three 12-in. lines; and on three, five 10-in. lines. The Mississippi River crossing consists of two 14-in. lines, using 41.20 lb. seamless pipe. All river pipe has ⅝-in. walls. As extra precaution against complete breaks, individual lines of some of the crossings were spaced as far as 100 ft. apart.

On the various crossings, conventional methods were followed. Sections were welded on the bank, coated and wrapped, and then, with river clamps spaced frequently, pushed across with tractors and winches. On such sections, the coating and wrapping of the pipe was protected by lathing, bound on the pipe with wire. On the 3,000-ft. Lake Bisteneau crossing, the front end of the pipe was floated across on a barge.

In addition to the river and stream crossings there were 60 road and highway, and 13 railroad crossings. All these were cased with 22-in. seamless pipe, requiring a total of approximately 6,000 ft. of such casing.

A unique practice, rip-rapping, was devised to protect backfilling on the 25-mile section of the line through the rough country eastward from the Mississippi River to the Black River. The surface formation on this section is a fine, sandy loam, known as Loess, which originally was deposited by the wind. This formation has been deeply eroded, forming ridges with very abrupt slopes across which the line cuts at almost right-angles. To check erosion on these slopes and prevent exposure of the line, the backfill was protected by dams of dirt-filled bags. These dams built across the ditch from the pipe to the surface were placed at all breaks on the slopes where wash or erosion was likely to occur. On longer slopes, several series of dams were required, and between dams, to prevent erosion in the bottom of the ditch, the pipe was covered with a double row of earth-filled bags. More than 35,200 earth-filled bags were used on this stretch. Approximately 3,000 of these were placed to protect the approaches to the Black River crossing. Completion of this line gives United Gas Pipe Line Co. an integrated system.

A detailed description of the Vicksburg bridge crossing is given by D. E. Stearns, engineer for the company, in the latest issue of the United Gas Log, company house organ. Mr. Sterns writes:

"Approaching the Mississippi River from the Louisiana side over U. S. Highway 80, the road follows an upgrade on earth embankment, crosses the levee and immediately goes on a 1,000-ft. stretch of wooden trestle curving to the right toward the river. At the end of the wooden trestle work, the road straightens out and follows steel trestle work for a distance of about 4,000 ft. At that point, it enters the west portal of the bridge at water's edge and continues for a distance of 3,000 ft. to the water's edge at the east end of the bridge proper. Upon leaving the bridge, the highway again goes on steel trestle work and continues on to the high bank and into Vicksburg, passing the toll house about 400 ft. from the east end of the bridge.

"The 18-in. pipe line approaches the river from the west in a direction parallel to the steel trestle work and bridge proper. Just before reaching the levee, the 18-in. line ties into an 18-in. header from which two 14-in. lines extend, passing over the top of the levee and thence underground alongside the steel trestle and 15 ft. apart, to a point within 700 ft. of the west portal of the bridge.

"At this location, each 14-in. line rises vertically for a distance of about 50 ft. to the bottom member of the highway girders.

"From this point the 14-in. lines extend side by side, supported on the bottom member on metal rollers, a distance of 700 ft. to the west portal of the bridge proper. In this section and in each line is a vertical hairpin-shaped expansion joint designed to allow movements due to temperature changes.

"At the west portal of the bridge proper the two 14-in. lines swing out from underneath the steel trestle and follow the north side of the steel bridge proper. The lines are supported, one directly over the other, on rollers set in steel brackets which are welded into the bridge steel work. At two locations on the bridge, huge expansion bends in each line have been installed to allow for longitudinal movements of the pipe which will result from temperature changes.

"At the east end of the bridge, the two lines swing back underneath the steel trestle work and are supported over this short section by rollers on the lower member of the highway girders. This section contains another set of hairpin-expansion joints.

"A third type of pipe support is used over a short section of line under the east approach of the highway trestle just before the two 14-in. lines drop vertically for a distance of approximately 40 ft., and terminate this "multiple crossing" by extending underground from this point for a distance of 300 ft. to the east 18-in. header.

"The underground portions of the two 14-in. lines are coated with coal-tar enamel. All underground construction of the 14-in. lines between the levee on the west side of the river and the header on the east side of the river incorporates the use of river weights and anchors to safeguard the operation of the lines in periods of high water.

"For finger-tip valve control, a dual installation of Merco Nordstrom plug valves has been made. One is electrically controlled, the other hydraulically controlled.

"Using one of the 14-in. lines as an illustration and considering points between the limits of the west and east headers, at each header a 14-in. valve is installed in the line with a 6-in. blowoff adjacent to it on the river side. All four of these valves are operated by reversible motors and connected to relays installed in small steel buildings located at each header. These motors are connected to a control cabinet located in the toll house at the east end of the bridge. In the event of an emergency, the attendant at the toll house can break a glass panel and push a button which actuates the interlocked controls. This causes the motors on the four valves described to start, and to continue running until the two 14-in. valves have closed and the two 6-in. blowoff valves have opened. Limit switches cut off the motors when the desired position of the valve has been reached.

"The bridge attendant at the toll house is unable then to operate the valves further. However, the control cabinet contains another compartment which is locked. Only certain employes of our company will carry keys to this inner cabinet. In it are other buttons which will cause the motors to reverse, opening the two main 14-in. valves and closing the two 6-in. blowoff valves. Located in the small control houses at each header and available to employes of our company only, are other switches which can be independently used to open and close the valves.

"Arrangements have also been made for telephone communication between the header control buildings and the toll house.

"The equipment and manner of operation is exactly the same for both 14-in. lines and each line can be controlled independently.

"As an added safeguard for control of the two 14-in. lines across the Mississippi River, an additional set of two 14-in. Merco Nordstrom valves with one 6-in. blowoff have been installed on the bridge proper. One 14-in. valve is near each portal, with a 6-in. blowoff valve in the middle of the bridge. These valves are controlled in a similar manner to the electrically controlled valves except that fluid lines transmit pressure to control cylinders located at the valves, which make possible their rapid operation by simply pressing an actuating mechanism in the toll house."

Repair Long String of Tubing Under High-Flowing Pressure

BECAUSE of leaks that developed in the tubing string, Fohs Oil Co. recently had occasion to rework its No. 1 Buckley-Bourg, world's deepest flush-producing well, located at Bayou DeLarge, Terrebonne Parish, coastal Louisiana. Circumstances made it impossible to kill the well first, and forced working against a flowing pressure that had remained constant at 4,950 lb. since completion of the well 18 months previously. Despite handicaps and hazards, repairs were made and the well has been recompleted successfully.

When the workover repair job was attempted the nature of the trouble in the well was not known. Indication of trouble, however, had been given by the fact that pressure on the oil string had continued to build up gradually although, in completion of the well, two tubing packers had been set at 11,200 ft. to seal off the extremely high bottom-hole pressure. Because of this it had been necessary to bleed off the pressure constantly through a ⅛-in. choke.

The conclusion was drawn, however, that either the packers were not holding or that the tubing collars were leaking. With a view toward correcting such a condition the company moved a rig back over the well and the workover project was attempted under the immediate direction of W. B. (Jabo) Isaacks, general superintendent.

Production of the well is from a depth of 13,254-66 ft., where 5-in. liner, cemented at 13,301 ft., was perforated. The hole had been drilled to a total depth of 13,333 ft., with 7-in. casing being cemented at 11,656 ft. The liner was a 1,957-ft. string extending 312 ft. into the 7-in. casing, where it was cemented. The 2½-in. tubing, with perforated nipple on bottom, which then was run to complete the well, was sealed off against the 7-in. casing at 11,200 ft., the two packers being used as an extra precaution to seal off the pressure from that string.

Unusual Assembly

At the surface the tubing string was suspended and sealed on the closed rams of a Cameron ram-type tubing control head, on which was assembled a 10,000-lb. test Cameron christmas tree. Below the rams of the control head were two 2-in. flanged outlets, by one of which it had been possible to bleed off the pressure from the 7-in. casing. This assembly also facilitated the reworking and recompletion operations under pressure.

Following customary procedure, an attempt was first made to kill the well by pumping heavy mud into the hole through the tubing, but it was found that the formation would not take the fluid, although a pump pressure of 6,800 lb. was built up. Although it might have been possible, it was not desired to subject the tubing string to any higher pressures. When the pumps were stopped the well pressure would build up quickly to 4,950 lb.

Unsuccessful in getting the formation to take fluid through the tubing, efforts then were made to lubricate between the tubing and the 7-in. casing, by means of one of the two outlets below the rams of the control head. A 15.3-lb. mud was used but as fast as it was pumped in it returned through the tubing. Pumping, however, was continued for nearly a week, at the end of which time the well had retained sufficient mud to reduce the flow pressure to 1,600 lb.

During these operations computations were made of the length of time required for the mud to return to the surface. By this it was estimated that the tubing leak was at a point between 4,000 and 5,000 ft. Although still not known, it later was learned, after pulling tubing, that a hole had been cut by well pressure in the tubing at that level, and that the mud was returned to the surface because of a jetting action caused by the hole.

Sealing the Tubing

With a view toward sealing the tubing, it was decided to install a nipple with back pressure in the tubing hanger nipple. With the tubing thus sealed a joint of pipe could be screwed into the female thread of the back-pressure valve nipple so that the tubing string could be rotated, and thus release the safety joint on bottom. Also, it was considered possible that the leak was caused by a loose collar, in which event rotating the tubing string would have tightened the joint.

Accordingly, a Cameron back-pressure valve-removing tool was installed above the 4-in. gate valve on top of the christmas tree. This device was designed for use in completing high-pressure wells under pressure. It consists of a rod which works through a yoke provided with two stuffing boxes, by which, as soon as well pressure enters the yoke, it causes a balanced pressure on top and bottom of the rod. The rod may be moved in either direction by a friction wrench. So, with the back-pressure valve made up on the lower end of the rod, it was snubbed down through the christmas tree to be screwed into the hanger nipple.

Under the derrick floor following completion of the world's deepest flush-producing well. Well hookup of Fohs Oil Co.'s No. 1 Buckley-Bourg, Bayou DeLarge, Terrebonne Parish, coastal Louisiana

However, upon contacting the hanger nipple it was discovered that the threads had been completely destroyed by the high-pressure flow of the fluid from the well. Consequently, it was decided to install a tap on the lower end of the rod and cut new threads in the tubing-hanger nipple. This operation was successful and an Otis removable tubing choke then was set at approximately 40 ft. in the tubing. With the tubing string finally sealed, a Cameron ram-type stuffing box was installed on top the christmas tree, and a joint of pipe with a special nipple made up on the lower end was stabbed into the newly cut threads in the tubing-hanger nipple.

With the stuffing box rams closed and the rams of the tubing control head opened to release the tubing string, the tubing was rotated slowly with a view toward making up the loose joint, if there were such a joint, or releasing the safety joint on bottom preparatory to pulling the tubing. However, after about 18 revolutions, the tubing parted. Later, when the tubing was pulled, it was learned that the part was at approximately 4,700 ft., at the point where the hole had been cut in the tubing.

Eliminating Jetting Effect

Breaking of the tubing served to eliminate the jetting effect which had been caused by the hole in the tubing and which had resulted in forcing return of the mud to the surface and preventing killing the well. This made it a comparatively simple matter to kill the well with heavy mud, so after removing the Otis choke from the top portion of the tubing string circulation was started through the tubing, and after 6 hours of pumping heavy mud into the hole the well was dead.

The 4,700-ft. loose section of tubing then was pulled, after which the remainder of the string was fished with 3-in. drill pipe. A new string of 3-in. external upset tubing then was run with a circulating anchor packer made up near bottom. After washing the well with clear water the packer was collapsed to seal the tubing and casing. In a few hours the well had cleaned itself and was back on production with its original flowing pressure of 4,950 lb., the highest constant flowing well pressure ever recorded.

Ordinarily, in the case of a tubing leak, it might have been possible to run a string of small pipe inside the 2½-in. tubing to kill the well, but in this well the tubing was found so crooked as a result of the high pressures that it would have been impossible to get another string down.

The workover and recompletion operations were carried out with a drilling barge. The well, located in an isolated marsh district, was drilled originally with such a barge, as the location is accessible only by water route.

TOUGH JOB AHEAD

Tool joints that can't take it and economical drilling don't speak the same language. And, vice versa, joints that stand up and give trouble-free service go a long way toward holding down drilling costs. The experience of drillers who are using tool joints made of Chrome-Moly (SAE 4140) steel proves that.

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And, because the steel is strong, Chrome-Moly joints need not be thick walled. In other words, they can have bores large enough to permit free fluid flow.

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Progress in METALS

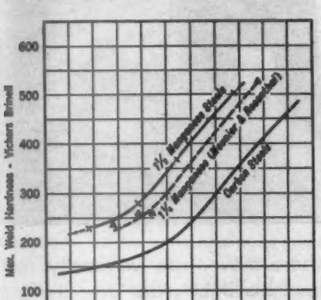
By W. L. NELSON

Weld Hardening of Various Steels

Abstract—French & Armstrong, "Weld Hardening of Carbon and of Alloy Steels," the Welding Journal, Pages 339s-347s, October 1939.

WELDS in alloy steels develop more hardness than carbon-steel welds and hence a study was made to determine the factors that govern weld-hardening. The method of comparison involved the deposition of a bead (3 in. long) on the surface of a plate and then cutting the plate along a line perpendicular to the center of the bead for determination of hardness.

Carbon has the most pronounced hardening effect and is followed by manganese, chromium, molybdenum and nickel as indicated in Figs. 1 and 2. The exact degrees of hardening produced by the various elements can scarcely be compared, except as is done in the figures, because widely differing amounts of the elements are used in the common alloy steels.



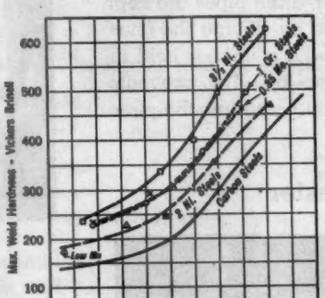


Fig. 1 (left)—Maximum weld hardness in ½-in. plates of carbon steels and ternary steels of manganese, chromium, molybdenum and nickel. (Surface beads deposited at about 5 in. per minute. Heavily coated 3/16-in. electrodes used.)

Fig. 2 (below)—Effects of carbon, manganese, chromium, molybdenum and nickel on weld hardenability of steels containing different carbon contents. (Curves derived from those in Fig. 1.)

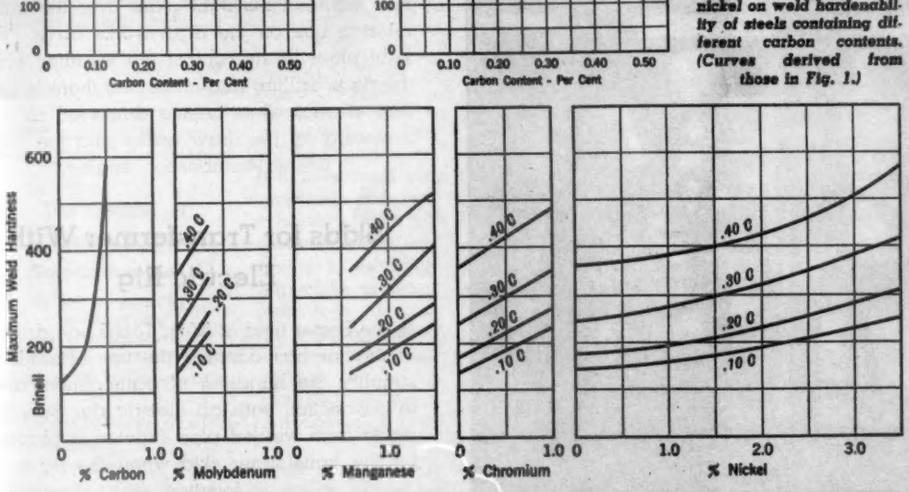


TABLE 1—EFFECTS OF PREHEATING AND STRAIN RELIEVING ON WELD HARDNESS OF ALLOY STEELS WITH APPRECIABLE HARDENING CAPACITY IN ½-IN. PLATES

Composition							Maximum weld hardness—Vickers-Brinell when plate welded at designated temperature, °F.				
C	Mn	Si	Ni	Cr	Mo	Type	Plate hardness, Brinell	70°	250°	600°	900°	70°, then stress relieved at 1,110° F.
0.35	1.28	0.39	1.57	...	...	Cast	230	285	415	395	...	...
0.29	0.83	0.24	2.20	0.68	0.25	Cast	255	575	480	415	...	...
0.40	0.76	0.39	2.10	0.79	...	Cast	265	610	570	455	515	...
0.44	0.45	0.24	3.50	1.48	...	Wrt.	340	735	625	670	530	363
0.46	0.66	0.23	2.01	...	...	Wrt.	235	470	...	...	...	300
0.23	0.64	0.18	3.27	...	...	Wrt.	185	335	315	240	...	...
0.35	0.52	0.06	3.23	...	...	Wrt.	205	495	370	290	...	254
0.45	0.51	0.20	3.41	...	...	Wrt.	255	625	...	...	...	297
0.21	1.00	0.28	2.56	0.13	0.27	Wrt.	270	475	415	330	...	...
0.35	0.70	0.26	...	0.72	0.19	Wrt.	265	440	355	315	...	...
0.34	0.56	...	...	1.03	0.18	Wrt.	201	502	*426	339	313	...

*Preheated at 300° F.

"If appreciable proportions of alloys are to be added or if low hardenability over the broadest range of shop-welding conditions is desired in alloy steels, carbon contents should be below about 0.10. This should not be interpreted to indicate that higher carbon alloy steels are not weldable. . . . The trends shown, however, indicate that freedom from objectionable weld hardening over the broadest range of conditions is obtained only with low carbon contents and the lower the better."

Aside from the effect of composition on weld hardening, there are several physical factors that contribute to the hardening. Most of these are directly related to the rate of cooling of the weld. Thus, a high welding speed, a relatively thick plate, or low plate temperatures, all tend to cause a rapid cooling of the weld and to produce hardness in the weld. In all tests in which the plates were precooled to 5-10° F., which is somewhat comparable to conducting welding at a temperature of freezing, a distinct hardening occurred as compared with welds made in plates at room temperature. However, very little hardening occurred with steels containing only 0.10 carbon.

Preheating of the plate or stress relieving by heating to 1,110° F. after welding, aided greatly in reducing weld hardness. This is illustrated in Table 1.

"When weight reductions are desired and steels of high elastic properties and strength are needed, low carbon, complex alloy steels offer distinct advantages over higher carbon, plain carbon steels with respect to weld hardening. At equal or higher yield points, such alloy steels show lower weld hardening than the plain carbon steels, and can have the added advantages of improved resistance to corrosion in the atmosphere and other environments, better retention of toughness at low temperatures, better creep resistance at elevated temperatures, etc. Due to their low carbon contents, they can be expected, likewise, to have better forming properties."

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Impact Strength of Nickel Steels at —200° F. Temperature

Abstract—Armstrong & Gagnebin, "Impact Properties of Some Low Alloy Steels at Temperatures down to —200° F." presented before the American Society for Metals, twenty-first annual convention, October 1939.

The conclusions are: "Based upon results from testing experimental heats, augmented by tests on specimens representing steel produced commercially, it is concluded that good impact values (Charpy, keyhole notch) can be secured at temperatures down to —200° F. (—130° C.) with:

"1. Properly deoxidized, normalized and drawn cast steel containing a maximum of 0.15 per cent carbon and from 3½ to 4 per cent nickel, and with cast steels containing a maximum of 0.15 per cent carbon, 2¾ per cent nickel and approximately 0.30 per cent molybdenum.

"2. Normalized and drawn wrought steels containing a maximum of 0.17 per cent carbon and a minimum of 2¾ per cent nickel. Optimum nickel content in the plain nickel steels appears to be between 3½ and 4 per cent.

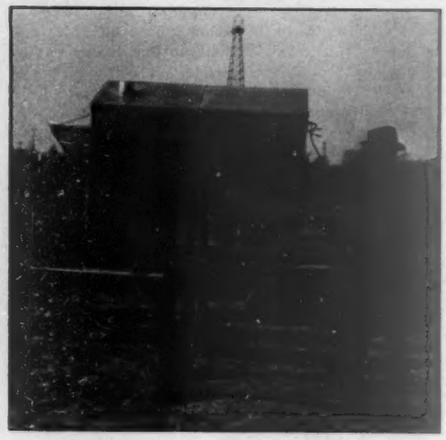
"3. Normalized and drawn wrought steels, containing low carbon and substantial quantities of nickel and molybdenum, that have been deoxidized with aluminum.

"4. Any of the above wrought steels after liquid quenching and drawing and, in addition, higher carbon fine-grained nickel, nickel-molybdenum, and other nickel alloy steels that have been quenched and drawn.

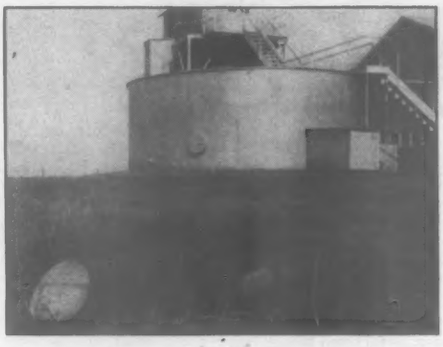
"Providing the soundness of welds can be assured by some nondestructive method such as radiographic inspection, welds made with heavily coated, low carbon, 2½ per cent nickel, 0.20 per cent molybdenum steel electrodes will meet most requirements for impact resistance at temperatures down to —150° F. (—75° C.). It is probable that welds made with other steels will maintain good impact resistance at temperatures down to —100° F. (—75° C.) and slightly below, but it is believed that there are few steels that will give weld deposits possessing the combination of tensile properties and low-temperature impact resistance secured with this nickel-molybdenum steel."

Operating Ideas

Portable Steel Racks for Tubing and Rods



One Illinois drilling contractor has no trouble handling tubing and rods while servicing a well with a portable spudding machine as the equipment includes special racks for handling this material. The racks are of welded construction and are made from old 3-in. pipe and 2½-in. tubing. The base is large enough to prevent overturning. The lower compartment is for rods while the upper part holds tubing.



Flapper on Drain Pipe

At a filter plant in the water-flood area of northeastern Oklahoma, drain pipes are kept closed when not in use by having the ends beveled and covered with a flapper held in place by a hinge at the top. This prevents rabbits and rodents from going into the pipe.

Permanent Position for Light Plant

The light plant on a rotary rig is an essential part of the equipment, but, being a particularly small part of the total machinery required to drill a well, it is often abused and mishandled. On mechanically driven rigs, the light plant consists of a small internal-combustion engine and a direct-current generator mounted on skids. This operator in

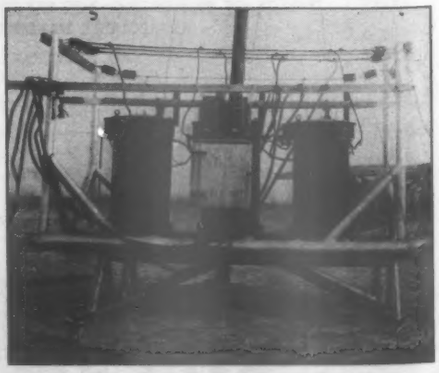
Illinois, where moves are frequently made, has mounted his light plant over the transmission box on the draw-works drive. The light plant is thus out of the weather while the rig is drilling and in moving there is very little chance of its getting damaged as it is protected by the draw works and the large internal-combustion engine.

Rack for Wire Line and Straight-Hole Tester

Straight-hole tests are run frequently on most drilling wells and many rigs now have the wire-line spools permanently mounted. The installation illustrated is unusual because of its location and because it incorporates a bracket for holding the case for the recording instrument. The braces are made from old 2½-in. tubing and are bolted to the framing substructure on the mechanical rig; a ⅞-in. plate with a bored hole for holding the reel is welded to the top of the brace. The driving pulley on the reel is placed immediately back of the cathead, thus making guide pulleys for the continuous rope unnecessary. The entire arrangement is protected from the weather by the engine shed and its location prevents damage to the reel or measuring mechanism. The case for holding the vertical-deviation recording mechanism is held by a guide collar welded on the rack at the top and a socket at the bottom, both of which are made from discarded 2½-in. tubing.

Skids for Transformer With Electric Rig

In the Foster field of West Texas one drilling contractor has adopted the use of skids to simplify the handling of transformers used in connection with an electric rig. Supports made from welded pipe provide a platform for the transformer skid when the rig is on location.



S. A. E. Abstracts

Papers presented before Annual Meeting of Society of Automotive Engineers, Detroit, Jan. 15-19

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Supercharging High-Speed, Four-Cycle Diesel Engines

By ROBERT P. RAMSEY
Chief Engineer
Philadelphia Plant
The National Supply Co.

In the author's opinion it seems quite conclusive that the high-output, high-speed, four-cycle supercharged diesel engine can be built today on a production basis in very close cost equality with the gasoline engine. The only remaining element of disproportionate cost in the diesel is the fuel injection apparatus. Basic simplification is indicated as the correct attack on that problem. The automotive-type diesel power plant of the future may in all probability be a smaller displacement engine than its gasoline-burning competitor and about the same weight per horsepower but it will have better economy.

Supercharging to the diesel engineer opens up the same possibilities for progress as the advent of superheated steam and high-pressure steam offered the steam engineer. Present research is directed toward completely noiseless combustion, better economies and higher b.m.e.p. output. It seems likely that 200-lb. b.m.e.p. four-cycle may ultimately be obtained in a commercial engine.

The aircraft situation presents different governing factors from those of the commercial industrial marine or automotive engine, but many things can be learned from aircraft technique in engine structures, which may be applicable to the heavier design class.

The author believes that nonvolatility of fuel together with engine simplicity will favor the four-cycle supercharged diesel type, and that for truck, industrial and marine use the oil engine is on its way to fast becoming the considered standard. It matters little to the practical engineering fraternity whether the engine is two-cycle or four-cycle, the performance and cost promising to be ultimately about the same if both designs are developed to their limits.

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The Control of Smoke in the Automotive Diesel

By W. W. MANVILLE
G. H. CLOUD
A. J. BLACKWOOD
W. J. SWEENEY
Standard Oil Development Co.

The acceptance of diesel engines as automotive power units in this country, particularly for bus service, has been retarded to a considerable extent because of the association of smoky exhausts with the compression-ignition engine. In attacking the smoke problem, tests were devised for making smoke measurements, one problem of which was that of determining just what should be considered objectionable smoke.

The tendency of fuels to smoke in automotive engines has been found to be chiefly related to viscosity, volatility, and ignition quality, and the authors show the relative importance of these variables and their interrelated effects. Results of tests are shown in charts.

Smoking in automotive diesel equipment is particularly sensitive to engine mechanical condition. A faulty nozzle can produce dense clouds of smoke on any type of fuel. Cylinder wear increases smoking by permitting the pumping of oil into the combustion space as well as by reducing compression pressure. Smoking of bus units at acceleration after idle increases 1 to 2 per cent for each 1,000 miles of service, unless a maintenance procedure is adopted to prevent it.

On the basis of field-test results, it might appear that the way to reduce objectionable smoke in critical engines is to use light fuels, and in certain cases have been recommended. However, certain practical disadvantages such as loss in power and increased fuel consumption result. In cases where either design, maintenance or adjustment fail to accomplish the degree of smoke control desired, improvement can be brought about by the use of lighter fuels of suitable ignition quality, even though this is brought about by some reduction of power and a loss in fuel economy. Insofar as the fuel itself is concerned, the effect of cetane number on smoke is less important than the effect of volatility except in cases where the ignition quality of the fuel is below the minimum demanded by considerations of roughness and cold starting.

●

Effect of the Viscosity of the Fuel Oil on the Injection Equipment for Oil Engines

By G. W. BAIERLEIN
American Bosch Corp.

In summing up the various effects of the viscosity of the fuel on the supply and injection system between supply tank and spray nozzle, it may be stated that the filtering system is affected to the greatest extent by the viscosity. All other effects are entirely negligible when compared with the effect on the filtering system. The filtering system is the link in the injection-equipment setup which determines the limit of the viscosity of the fuel used. Normally this limit lies at approximately 200 viscosity (S. U.). With this limitation, however, no difficulties are expected so far as supply pump, injection pump and nozzle are concerned, the more so since in actual operation on the hot engine the viscosity of the fuel is generally lower.

The effect of the viscosity of the fuel handled by the injection equipment on its lapped parts such as plungers and barrels, delivery valves, and spray nozzles is negligible as exhaustive endurance tests conducted in the laboratory as well as in the field have definitely demonstrated.

It is true that there is increased wear when using a 35-viscosity (S. U.) fuel as compared with that of a 40-viscosity (S. U.) fuel and there is a still greater wear with a 30-viscosity fuel. However, the differences in wear rates are minute and only measurable after very long periods of operation and the percentage drop in volumetric displacement cannot be considered sufficiently pertinent to warrant ruling against the use of these lighter fuels. This is particularly true when considering that the small quantities of residual products such as are often picked up as contamination in the transfer, transportation or storage of fuels result in much higher rates of wear of the lapped parts of the injection equipment than the use of low-viscosity fuels.

The effects of fine abrasives or solids suspended in the fuel and not held back by the filtering system used, even material such as zinc soaps which may be picked up from galvanized fuel tanks or small percentages of iron oxide as may be gathered up from rust caused by contamination inside the fuel tank as well as corrosive agents the fuel may contain, by far outweigh the effect of the viscosity itself on the wear of the lapped parts such as plunger and barrel, discharge valve and spray nozzle.

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CFR Motor Survey Report, 1939

By DONALD B. BROOKS
Senior Automotive Engineer
National Bureau of Standards

These surveys, begun in 1936, have for their purpose the determination of the fuel quality requirements of current automobiles with respect to vapor lock and knock. The results are given in tables, which cannot be reproduced here, but in general it can be said that very little change is noted in the range of the data on minimum octane-number requirement. In the 1938 survey, this range for a typical car was about 5.4 octane units. In the present survey, the range for the same make of car is equivalent to 4.8 octane units. A lesser number of tests on other models also indicate little or no change in the degree of deviation.

In the data on limiting vapor pressures, there has been a considerable reduction in the range. For three of the cars covered by both surveys, the 1939 standard deviation averages 0.76 lb. per sq. in. as compared with 1.12 found in the 1938 survey.

The 1939 survey contains only 10 instances in which tests were made on the same car at two atmospheric temperatures. The values of the temperature coefficients obtained from these duplicate tests average 0.020 larger than do corresponding values obtained last year.

●

Availability and Characteristics of Aviation Safety Fuels

By ROBERT E. ELLIS and
WILLIAM J. SWEENEY
Standard Oil Development Co.

There are two possibilities for safety fuel of high-octane number. The aromatic type is immediately available from selected crudes through the application of proven methods of solvent extraction. Supplies of material of this type can also be augmented by hydrocarbon - conversion processes such as thermal and catalytic reforming, dehydrogenation, destructive hydrogenation, catalytic cracking and vapor-phase cracking. The paraffinic type of suitable octane number for aviation use is not available in any presently known crude oils. Therefore, the paraffinic safety fuels will of necessity be 100 per cent synthetic products, comparable to the blending agents now used in aviation gasoline: isooctane, hydrocodimer, alkylate, neohexane, etc. It appears that these fuels will be made, in part at least, by synthetic methods using refinery olefinic gases and refinery and field isobutane, and that their production will compete for the raw materials now being used for the manufacture of blending agents for regular aviation gasoline. Indications point to a lower octane number for safety fuels than the blending agents of normal volatility made from the same feed stocks. Nevertheless, these safety fuels can be expected to reach 85 to 100-octane number, since

they will be used as such rather than blended in lower octane number virgin stocks. With lead, of course, they will go higher, and have good lead susceptibility.

The price of safety fuels will depend on the specifications that are finally decided upon, and the consumer requirement.

In addition to their use as aviation purposes, it is possible that safety fuels will find acceptance with marine operators, and for such mobile equipment as tanks, which will increase the demand and thereby lower the cost of the fuels.

It is presumed that safety fuels will ultimately conform to one general specification, except for octane value, as is substantially the present situation for aviation gasoline.

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It is the authors' convictions that responsibility for the starting of the engine must be shared by the engine manufacturer and the manufacturer of the vehicle or equipment in which the engine is used. The engine manufacturer must furnish a sufficiently large starting motor, recommend fuel and lube oils and advise the equipment manufacturer the torque requirements, minimum starting speeds and starting times. He must also furnish a means of supplying heat where this is necessary for starting.

Observations on the Cranking of Diesel Engines

By L. E. LIGHTON
and H. C. RIGGS
Development and Design Division
The Electric Storage Battery Co.

It is the equipment manufacturer's responsibility to provide electrical power for starting under the adverse conditions of the service in which the equipment will operate. In his selection of the starting battery he must be thoroughly familiar with the specific requirements of the engine and oil recommendations. The importance of operator education cannot be minimized. The proper use, maintenance, and replacement, when necessary, of the electric starting appliances will not only save the equipment unnecessary hardships and prolong its life, but may actually be the deciding factors which determine the desirability of the equipment manufacturer's product.

Proper maintenance of the battery is just as important as its proper selection, for the engine and its associated equipment are subject to criticism without proper battery care. The maintenance of the storage battery in diesel-engine installations requires the same attention as in other engine installations except that because of the probably longer use per day, the battery will require more frequent attention. With short shut-down periods it is obvious that the value of the charging rate is critical and, therefore, must be controlled close to the average requirements by slight corrections in either the voltage regulator setting or current setting in the care of two rate or third brush control to maintain the battery in a charged condition. The temperature of the battery while charging by any method must be limited to 110° F. All current and voltage settings are best made at battery temperatures of approximately 80° F. and with reliable instruments.

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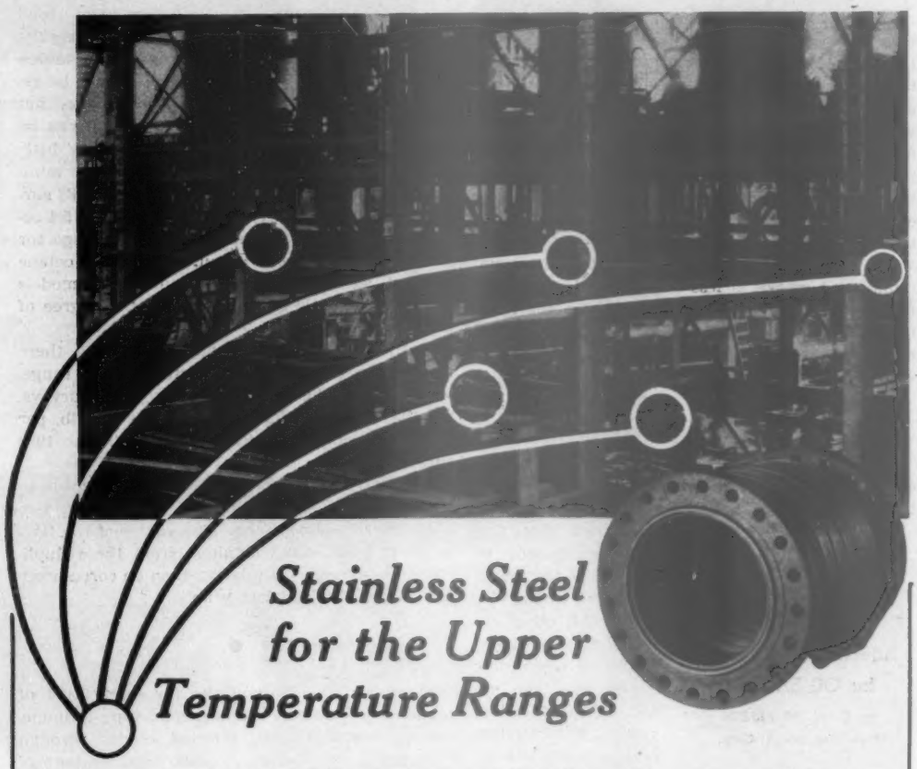
The author gives a report of his visits to various European plants manufacturing aircraft diesels. Briefly, he found that the diesel started easily, ran smoothly and accelerated quickly, and did not vibrate or smoke under normal conditions. In comparing the modern aircraft diesel engine with the modern gasoline aircraft engine, he presents figures to show that the diesel has a slight advantage with regard to specific output and specific weight, and a big advantage with regard to specific fuel consumption. From these figures he concludes that a definite future exists for air-cooled, four-stroke aircraft diesels in the 400-hp. to 600-hp. class. In comparing high-powered, moderately supercharged, air-cooled diesel and gasoline aircraft engines in the 1,000-hp. class, he avers that the only diesel which fits into this power range is a B.M.W.-Lanova development project which is 2 years old. The gasoline engines are the Pratt & Whitney Twin Wasp SC3-G, the Wright Cyclone GR 102A and the Pratt & Whitney S1C3-G, all of which are current production models. This selection provides an interesting comparison between a modern diesel design and gasoline engines using 87, 90, and 100-octane gasoline respectively. Comparing the diesel with the 87-octane gasoline engine, it is seen that the diesel is at a slight disadvantage with regard to specific output while it is on a basis of parity with regard to specific weight. As compared with the 90 and 100-octane gasoline engines, it is seen that in the matter of specific output, the diesel is at a still greater disadvantage and that it is also at a slight disadvantage with regard to specific weight. In all instances, however, the diesel has the advantage in the matter of specific fuel consumption by a substantial margin. He thus concludes that an up-to-date air-cooled, four-stroke aircraft diesel could compete on a basis of parity with an 87-octane gasoline aircraft engine and in all probability with engines operating on 90 and 100-octane gasoline in the 1,000 to 1,200-hp. class.

The high-performance water-cooled and liquid-cooled diesel is far ahead of similar gasoline engines with regard to specific output, due undoubtedly to its two-stroke functioning. In the matter of specific weight, it appears at first

(Continued on Page 215)

The Performance of Modern Aircraft Diesels

By PAUL H. WILKINSON
Consulting Engineer



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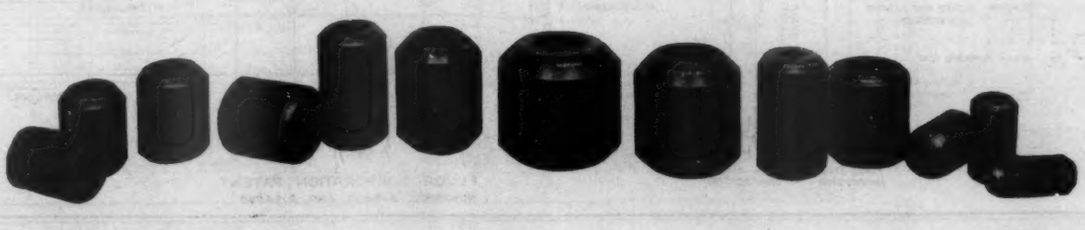


Shell and Coltexo Plant in Wasson-

SHELL Oil Co., Inc., and Coltexo Corp.'s new gasoline plant, completed earlier this month, in the Wasson-Bennett field, West Texas, incorporates a number of modern features in design and operation. Essentially, the plant is intended to obtain up to 95 per cent recovery of butanes. An unusually high degree of processing efficiency is made possible, and substantial economies are effected by maximum utilization and conservation of available heat, and by consequent reduced steam requirements.

Compression capacity of the plant is rated at 24,000,000 cu. ft. of gas daily. Processing capacity was built for 30,000,000 cu. ft. daily. Provision has been made, however, that with certain changes in hookup and operating control, additional processing capacity can be provided without the addition of a new unit. Space also has been reserved for the installation of additional compressors and other power equipment when needed.

The entire Wasson-Bennett area, lying in Gaines and Yoakum counties, and including the Denver and Roberts pools, is blanketed by the plant, which is located centrally to all areas. Main gathering lines, which are of 20 and 22-in. size, radiate to the various areas, these following the geophysical structural "highs," one to the Wasson area, another to the Bennett district, and a third to the Denver pool. From these, laterals extend into the respective areas.

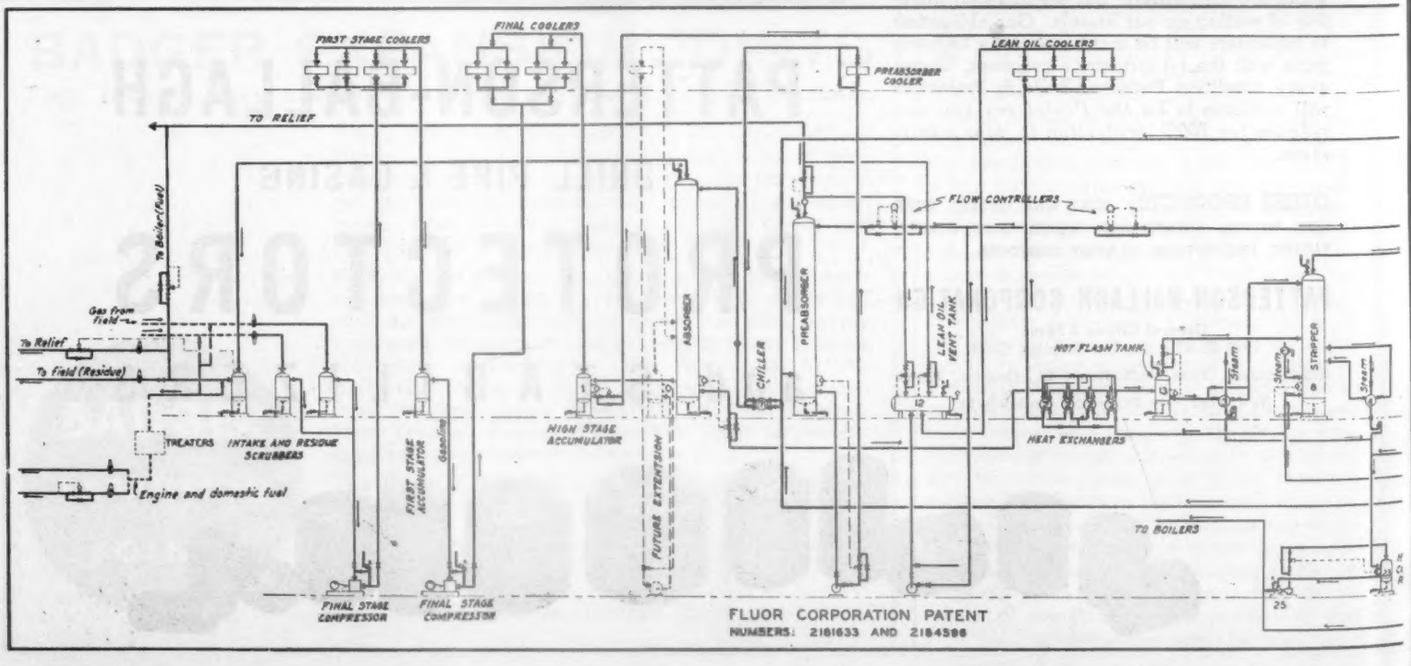
Product Pumped Directly to Lines

Production of the plant is pumped directly to Shell Pipe Line Corp.'s lines in which it is commingled with the crude oil for transportation to refineries of the company at Houston, Tex., and Wood River, Ill.

Design and operation of the plant are shown in an accompanying flow chart. Gas for processing is received from the gathering lines at substantially atmospheric pressure. In two stages of compression, utilizing seven 600-hp., angle-type two-cycle gas-engine-driven compressors, pressure of the gas is boosted to about 205 lb. gage. Some high-stage production of gasoline is obtained from the high-stage accumulator (1). This is flowed to a point ahead of the final vapor condenser (5), and thus bypasses the processing system, eliminating the absorption step. Gas from the high-stage accumulator passes directly to the main absorber.

As one of the special features of the plant, absorption oil is saturated with propane vapors from the stabilizer reflux accumulator (18). Saturating of the lean oil with propane vapors takes place in a preabsorber, ahead of the main absorber. This propane-saturated absorption oil not only provides a cooling action in the top of the main absorber, where excess propane is flashed off, but, by the

Right: High-pressure accumulator. Below: Flow sheet of plant



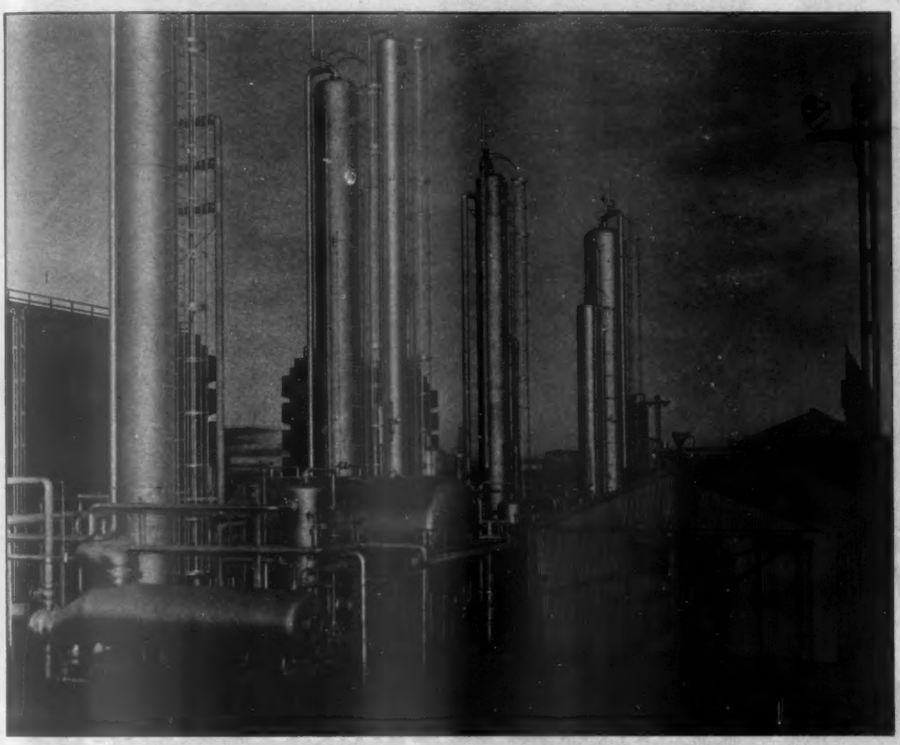
Complete Butane Bennett Field

removal of excess propane at this point, an equilibrium is effected eliminating any accumulation of propane later in the system.

Approximately 370 gal. of absorption oil per minute is circulated to the main absorber, this being pumped directly from the bottom of the lean-oil vent tank (12) into the top of the preabsorber, and thence out of the bottom, through a chiller (7) into the top of the main absorber. From the lean-oil vent tank, an additional 70 gal. of lean oil is taken each minute to the top of the reabsorber, making a total circulation for the whole plant of about 440 gal. a minute.

Rich oil from the bottom of the main absorber is taken through heat exchangers (2) for an exchange of heat with lean oil from the bottom of the hot-oil stripper and the still, thence through the hot-flash tank (13) and into the top of the hot-oil stripper. Overhead vapors of the hot-flash tank enter the midsection of the stripper.

Another important innovation in this plant is the conservation and utilization of the heat of the oil vapors passing overhead from the hot-oil stripper (8). These vapors, containing steam, natural gasoline and light fractions of absorption oil, ordinarily would be passed directly to a condenser, where all heat value would be lost. Here, the vapors, coming off at a temperature of 370° F., and having a heat value of about 5,500,000 B.t.u. per hour, are used in an exchange of heat with the rich oil from the bottom of the reabsorber in exchangers (5), where a temperature of about 150° F. results. Temperature of the rich oil from the reabsorber is raised from 115° F. to approximately 310° F. in this step, which lessens the duty of the still preheater in boosting the temperature to 380° F. at which the oil is charged to the still. This is a major heat-economy factor.

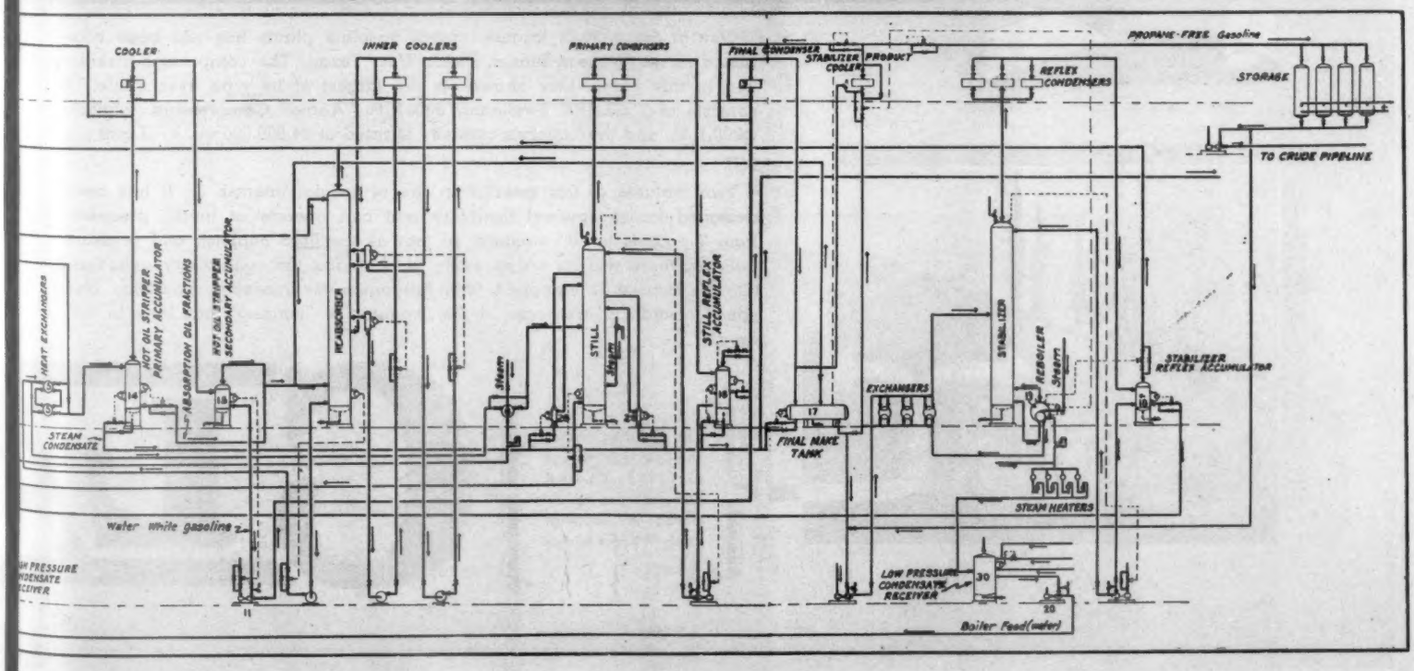


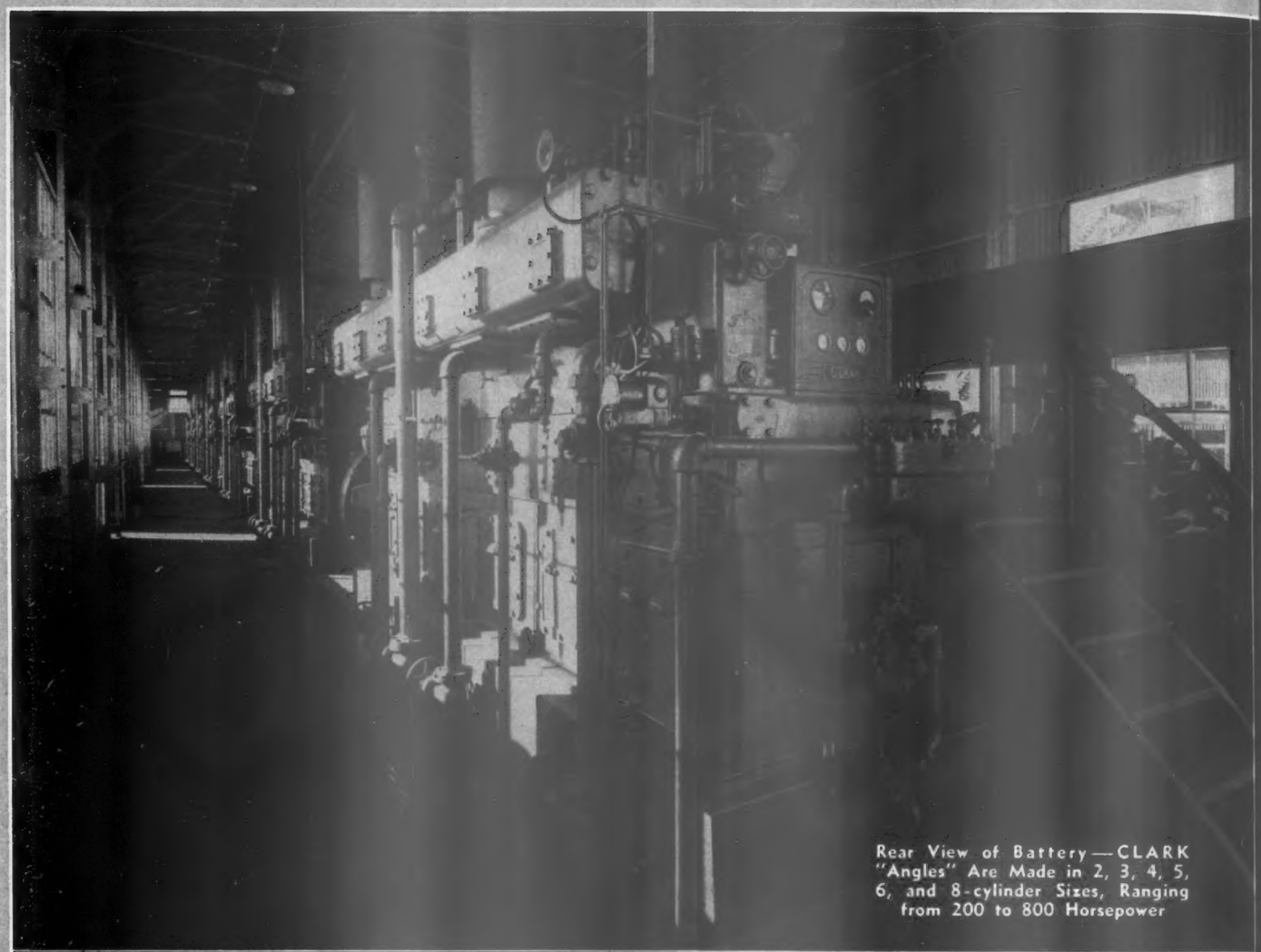
Left: Process equipment as seen from stabilizer

Pass to Primary Accumulator

From the exchangers, where temperature is reduced to about 150° F., the overhead vapors from the hot-oil stripper pass to a primary accumulator (14), in which a separation takes place. Condensed steam is taken from the bottom. Absorption oil fractions are taken from the interface. Vapors containing the gasoline pass overhead through cooler (10) into the secondary accumulator (15).

Here marks one of the most important special features of the plant. From this accumulator, in which temperature is held around 90° F., a substantial production of water-white gasoline is obtained. This is picked up by a pump (11) and discharged directly into the vapors from the still reflux accumulator (16), going into final condenser (9), where it assists in condensing the still reflux vapors. It is significant that the production from

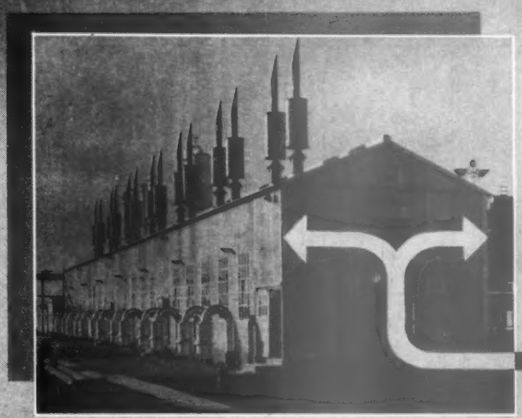




Rear View of Battery—CLARK "Angles" Are Made in 2, 3, 4, 5, 6, and 8-cylinder Sizes, Ranging from 200 to 800 Horsepower

NEWEST MAJOR

7 CLARK 6-Cylinder "Angles"

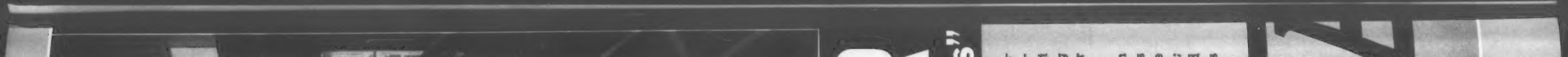


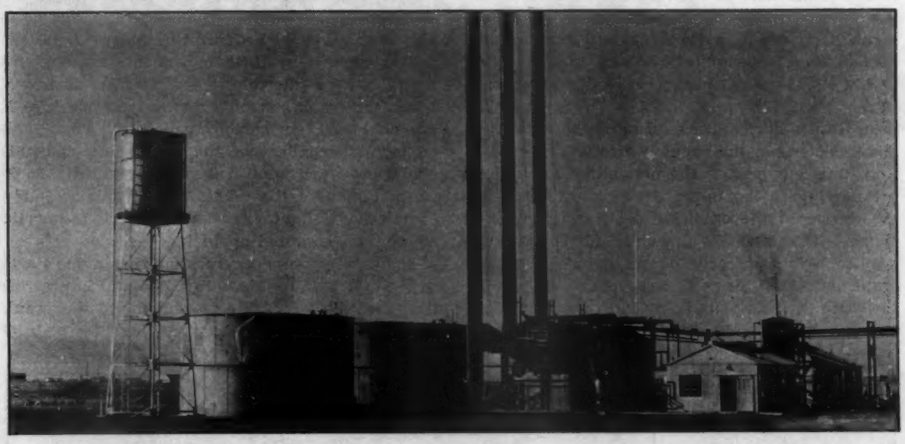
This building houses the battery above pictured. CLARK "Angles" can be installed in buildings only 24 feet wide

One of the world's largest natural gasoline plants has just been completed in the Wasson-Bennett Field, West Texas. The compressor installation in this plant—here shown—is the largest of its type ever made. It consists of 7 CLARK 6-cylinder, 600 H.P. "Angle" Compressors, totalling 4,200 H.P., and the battery's capacity is rated at 24,000,000 cu. ft. of gas per day.

Two features of this installation are of special interest: (1) It has been designed for exceptional flexibility and can operate at intake pressures from 2 pounds to 10" vacuum, so that as the field depletes and pressure falls off, there will be no necessity of changing the compressor cylinders; (2) The battery is equipped with full automatic pressure regulation and speed control, to take care of the irregular or "surging" gas flow in this area.

CLA





Upper: Process pump house. Right: View of boiler plant

this accumulator amounts to about one-third of the total production of the entire plant.

Removal of this production from the system ahead of distillation, materially lightens the load upon the still and other remaining stages of processing. As a result not only are heat requirements for operation of the still materially reduced but also capacity requirements of the still and other remaining units have been minimized in comparison with other units of the plant.

Uncondensables at the operating temperature (90° F.) of the hot-oil stripper secondary accumulator pass overhead directly to the reabsorber along with vapors from the final make tank (17).

Due to the removal of a substantial volume of gasoline from the system at the above accumulator, the rich oil bottoms from the reabsorber to the still carry an unusually high saturation of absorption oil. In this, the absorption-oil content runs about 50 per cent. This makes distillation easier, effecting more efficient and economical operation. This saturated oil is pumped from the bottom of the reabsorber, through heat exchanger (5) and preheater (6) into the midsection of the still. The still is equipped with two dehydrating sections (26). Operation of the still is conventional. Vapors overhead pass to the reflux condenser, and thence to the final make tank.

The stabilizer also is conventional in operation except that a part of the final stabilized product is fed as liquid into the vapor stream from the still reflux accumulator (16). This provides a continuous cycle for a portion of the stabilizer feed which has the effect of constantly working over the product and increasing the butane recovery.

In view of the scarcity of good water in the area, a condition characteristic of most West Texas fields, conservation of water is an important factor in the plant's operation. The plant was specially designed, and a number of the features have been provided to minimize steam requirements, which in turn reduce the amount of water necessary. Provision is made for the recovery of all steam condensate. Condensate from the stripper preheater (3), stripper reheater (4) and still preheater (6) is returned to a high-pressure condensate receiver (23). In this, pressure is held within a few pounds below boiler pressure, a saving on boiler duty. This condensate is pumped direct to the boilers.

Condensate from gas-turbine heaters, which in turn receive condensate from the stabilizer reboiler (19), is received in a low-pressure condensate receiver (30) along with exhaust steam from the high-pressure condensate pump (25) and other miscellaneous exhaust steam. Into this receiver, raw makeup water with water treatment is injected. The pump (20) which feeds the boilers from the low-pressure condensate receiver is controlled by a pressure-differential regulator, the boiler feed being controlled entirely from this point.

The steam-generating plant consists of three 225-hp., 250-lb. steam-working pressure, triple-drum water-tube boilers. They are installed in such a way that with one out of service the other two will operate at 170 per cent.

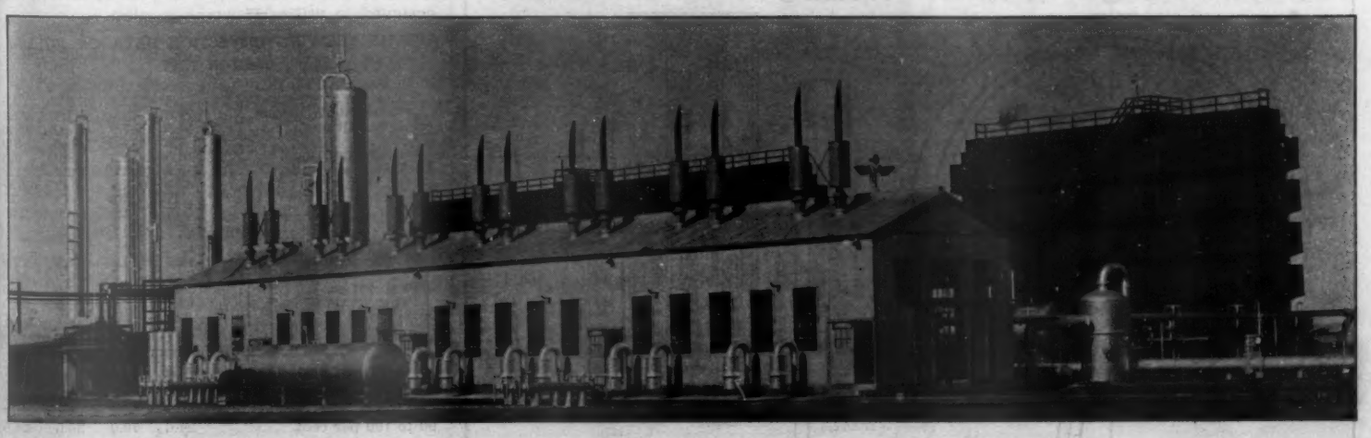
Further conservation of water requirements is made possible by the completely closed engine-jacket water-cooling system provided for the seven compressors. All pumps, except those handling condensate, are gas-driven, which reduces plant steam requirements.

BOOKS

A MODERN SPANISH-ENGLISH AND ENGLISH-SPANISH TECHNICAL AND ENGINEERING DICTIONARY. By R. L. Guinle. 336 pp. New York: Chemical Publishing Co. $4.

Here is a desk-size volume that should be useful to engineers, chemists, students, exporters, and correspondents. The dictionary was written by a professional consulting engineer with years of experience in South American countries. It contains words used in the three major divisions of engineering as well as many on derived sciences like aviation and wireless. The majority of terms found in the work are said to have been taken from numerous tenders, specifications, catalogs, and reports of all sorts.

View of part of plant showing process equipment, compressor plant, and cooling towers



SAFETY - Crank Prevents Arm Injuries

MANY manufacturers include safety devices on their machinery, sometimes on their own initiative and at other times at the behest of purchasers of the equipment. In addition, oil company research, engineering and safety departments frequently design and install attachments that will make a particular piece of equipment less dangerous. The following is a description of an antikick-back crank designed by J. A. Niles, research engineer, Stanolind Oil & Gas Co.:

The crank of the conventional engine is linked to the crankshaft in such a manner that it will disconnect when the engine starts up in the forward or running direction, but remains connected when the engine kicks back in the reverse direction, as occasionally happens. This sometimes results in an accident, such as a broken arm. In the device disclosed here, the crank will disconnect when the engine starts in either direction, thus eliminating the possibility of accident.

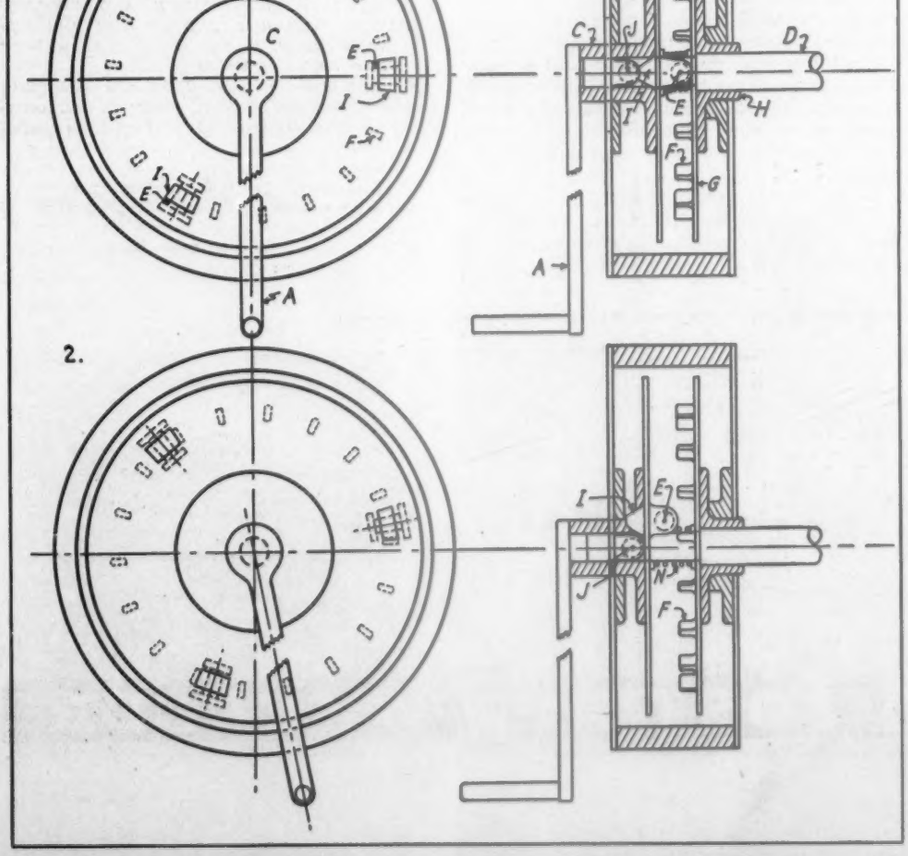
Referring to the upper drawing, which shows the device in the cranking position, crank *A* is connected to plate *B* through hub *C*. This assembly revolves freely on an extension of the crankshaft *D*. Rollers *E* bear against lugs *F* on the plate *G*. This plate is keyed to the crankshaft through hub *H*. Bearing against lugs *I* on the plate *B* are rollers *J*. These rollers rest in a slight depression on the top of the lugs. Plate *K*, to which the rollers are attached, forms the front of the outside case of the mechanism, and also supports the heavy inertia ring *L*. Plate *M* forms the back of the case. The inertia ring and its attached parts are free to rotate about the crankshaft on the hubs which are evident.

With the device in this position the engine may be cranked in the usual manner, as the crank is connected to the crankshaft through the lugs *F*.

Now suppose that the engine kicks back on starting. View 2 shows what occurs in this case. The lugs *I* are kicked off the rollers *J*. These rollers have very little movement, as they are restrained by the inertia ring. The spring *N* forces the crank assembly forward, so that lugs *F* are no longer engaged by rollers *E*. The crank is now independent of the crankshaft, and this operation is accomplished with very little backward motion of the crank. The crank assembly is relatively light, so that no serious inertia momentum is stored up in it.

The same process occurs when the engine starts in the forward direction. If it is found in practice that the small forward movement of the crank when the engine starts is annoying, the plate *G* may be connected to the crankshaft in the conventional manner, which would require another bearing around shaft *D*. However, having this plate keyed directly to the crankshaft is the preferred method.

To set the crank again in the cranking position, it is held with one hand, while with the other hand the inertia ring is rotated until the rollers *J* ride up on the lugs *I*, thus forcing rollers *E* into the operative position against lugs *F*.



Octane Number Does Not Fully Indicate Road Performance

(Continued from Page 67)

Then as if to substantiate previous deductions regarding the effect of varying the air-fuel ratio on motor-car performance and to carry the work into a broader field, Harold J. Gibson, and Cleveland Walcutt, of Ethyl Gasoline Corp., discussed the performance of a multicylinder motor with respect to motor-fuel distribution and fuel-octane requirements.

For this work an eight-cylinder-in-line engine of 1936 design was used. It was known to distribute fuel of widely different qualities among its eight cylinders. The fuels used were C.F.R. fuels 5 and 6, a straightrun gasoline and a blend of straightrun and cracked gasolines.

The results of many tests were shown graphically and in one it was especially interesting to note that use of an intake manifold of smaller cross-section than that used as standard on the car caused all fuels to knock more intensively and also altered the relative positions of the four fuels with respect to knock and power output. Additional work is in progress but all that is said at present is that a change in the cross-section of an intake manifold alters the octane requirements of this multicylinder engine, and so another variable is thrown into the pile to account for the lack of coordination among laboratory and road tests to show the octane number of gasolines as an index of road performance.

Still another factor was injected to explain why some cars knocked and others did not when all outward factors seemed to be alike. This time, the factor of engine condition was introduced. This was done by C. S. Bruce, of the Bureau of Standards, who reported he had two test cars which had shown that after an automobile engine is driven 12,500 miles it loses the power output equal to 25 octane units and that about one-fourth of this is due to the accumulation of carbon and three-fourths to mechanical wear and changes. Stated in another manner, the loss of power in an engine which has been driven 12,500 miles is equal to the difference in output of a motor designed to operate on 75-octane-number gasoline and one designed to burn 50-octane gasoline. Also by freeing the motor of its carbon deposit, this output can be raised equal to that of an engine designed to utilize 57-octane gasoline.

TABLE SHOWING INSPECTION DATA ON FUELS USED IN TEST

Fuel number	1	2	3	4
A.S.T.M. octane No.	71.4	72.4	74.5	72.8
C.F.R. research octane No.	77.5	77.9	80.5	72.2
A.P.I. gravity	54.5	57.9	57.0	68.6
R.V.P., lb.	7.8	7.3	8.0	8.9
Cu. dish gum, mgs.	14.5	10.4	13.9	5.8
A.S.T.M. gum, mgs.	3.8	3.6	6.4	1.2
Sulfur, per cent	0.030	0.031	0.032	0.027
Acid heat, °F.	47	38	48	11
Aniline point, °F.	77	90	90	158
Distillation				
I.B.P., °F.:				
Per cent at 158° F.	12.5	12.5	14.5	15.0
Per cent at 212° F.	34.5	34.0	35.5	35.0
Per cent at 257° F.	56.5	56.5	57.0	59.0
Per cent at 356° F.	93.5	92.5	93.0	91.5
90 per cent at, °F.	342	342	347	351
F.B.P., °F.	387	388	393	387
A.S.T.M. Octane Numbers of Cuts				
0 to 35 per cent	75.2	69.8	75.2	74.7
35 to 55 per cent	80.2	69.9	59.8	85.5
55 to 70 per cent	90.7	71.0	48.3	84.8
70 to 90 per cent	60.1	70.8	81.1	61.7
90 to 100 per cent	24.6	70.0	89.5	24.5

S. A. E. Abstracts

(Continued from Page 206)

glance that the diesel is at a disadvantage, but it must be remembered that the diesel requires less cooling area on account of its greater thermal efficiency, and so this difference in weight is equalized to a great extent in the engine installations.

In listing the advantages of the aircraft diesel, the author mentions such economic advantages as reduced fire hazard, low fuel operating cost and large payload and flight range possibilities. Mechanical advantages are reliability and efficiency.

●

Safety Fuels by Catalysis

By W. M. HOLADAY

The use of aviation fuels containing aromatics has not been looking upon with favor by the majority of operators in this country. However, such fuels have had wide acceptance in several foreign countries. While some recent full-scale engine test data have been obtained on safety fuels of various types in present-day engines, this information has not been generally distributed and, of course, does not cover all types of engines and fuels. Work carried out on small single-cylinder laboratory test engines has shown the possibilities of such fuels. While the octane number of the fuel containing 3.0 cc. of tetraethyl lead is only 85.0 by the C.F.R. motor method, when tested in a supercharged test method, developed and reported in a recent publication by S. D. Heron, the fuel is equivalent to 90-octane number.

Aromatic hydrocarbons have the lowest calorific values (heat of combustion) of any of the hydrocarbons. Paraffines have the highest calorific values, and the olefins and naphthenes of the same number of carbon atoms have slightly lower values than the paraffines. Completely aromatic safety fuels have about 8 per cent lower calorific value than completely paraffinic material of the same boiling range. Catalytically cracked safety fuels containing about 30 per cent aromatics have been found to have a calorific value which is 1½ to 2 per cent lower than purely paraffinic fuels of 300 to 400° F. boiling range.

Equipment is available for the production of large quantities of aromatic-type safety fuels. These fuels can be diverted to special use by the installation of facilities for separating the desired stocks in the refineries and establishing a distribution system. The cost of these fuels will be comparable to that of aviation gasolines of equal octane number, provided specification requirements do not necessitate special equipment for manufacturing and handling.

●

Alkylation as a Source of Safety Fuels

By RAYMOND HASKELL
Texas Co.

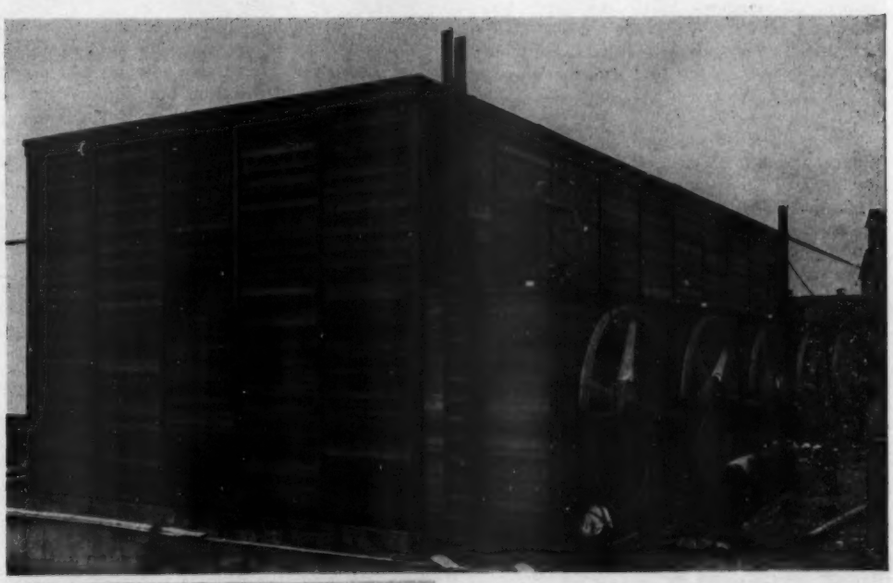
The alkylated form of safety fuel has been run in test engines in comparison to other forms of high-octane fuels, using direct cylinder injection and it has been found that there is no difference in power and efficiency between the safety fuel and gasoline. Tests are also in progress using safety fuel in a full-sized engine simulating airline service, though naturally not carrying passengers. The principal problem of course, is the difficulty of starting in cold weather. Tests are also underway by qualified agencies to determine how safe is safety fuel. We know it has a high spontaneous ignition temperature and a high fire point but do not know the relation of flash point (Pensky-Marten) to actual explosive force—if any.

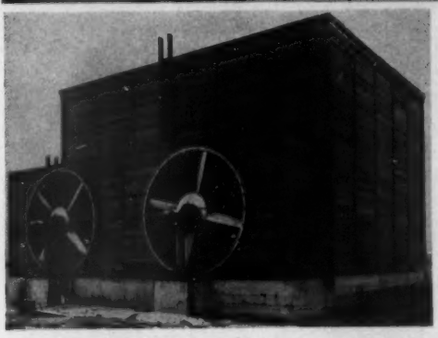
In regard to quantity, as far as alkylation gasoline is concerned, this process has been so thoroughly exploited commercially that there are now in operation, under construction, or seriously contemplated, sufficient capacity to make 15,000 bbl. a day. On the basis of 300 days a year operation, this capacity will produce 200,000,000 gal. of alkylate a year. When and if blended with other lower-octane fuels and leaded, this quantity can be greatly increased. How much 300-400° F. cut can be made depends somewhat on manner of operation, and how much total yield of the regular aviation cut can be sacrificed. A good conservative estimate, however, is about 15 per cent. This makes available a probable quantity of 30,000,000 gal. per year, if wanted. This surely is much more than can be used for some time yet. If a real commercial interest is developed, there is no doubt that safety fuel can be made directly, and not as a byproduct, but a different system of manufacture may be expedient.

The question then arises: How far should this production be expanded? And the other question: How about raw materials? We are in the hands of the aviation industry. How much does it want or need, and how soon? Naturally, there is no limit to the number of production units that can be installed, if the raw materials are available. If raw materials give out, we know ways of making them. Olefins are producible by cracking. Isoparaffins can be made by isomerization of straight paraffins. What that is need not be explained here except it is a good practical method of making isoparaffins.

As soon as some reasonable definite figure of demand over the next 5 years can be determined, natural competition will bring the price to a level which the aviation industry can well afford to pay, and the oil industry still make a little money—very little.

MECHANICAL DRAFT
COOLING TOWERS





Low-head cooling towers, sheathed, framed and filled with California redwood. The axial flow fans have hubs and adjustable-pitch blades of cast Dowmetal.

in one Refinery

Effective water cooling is provided by five Foster Wheeler cooling towers in the 1939 program of one refiner. Two of the towers are illustrated: the five-cell tower serves three stills; the smaller tower, a reforming unit.

All five towers are of low head construction with mechanical draft fans to secure high capacity the year around. Short water lines connect with the processing units and afford low investment with maximum performance.

FOSTER WHEELER CORPORATION
165 Broadway New York, N. Y.

FOSTER WHEELER

QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph. D., Technical Editor

Inhibiting Elements in Pipe For Resistance to Corrosion

It appears from the statements made by several authorities that chromium, copper and nickel are the important elements which are incorporated in iron and steel to reduce soil corrosion of pipe used in pipe lines. I would like to know if there have been any scientific investigations made which show what percentages of these elements should be present?—F. A.

The literature relating to the composition of iron and steel with respect to the causes for and the prevention of corrosion is extensive. Among the numerous investigations that have yielded valuable information on the subject are those which studied the behavior of specimens placed in soil. One of these has been conducted by the National Bureau of Standards under the supervision of Kirk H. Logan, who has made a report of the examination of 1,600 specimens of underground pipe which were removed in 1937 after exposures from 5 to 9 years. A part of the conclusions is given here.

The addition of small amounts of chromium, copper, nickel, and some other elements to iron or steel appeared to have no marked effect on the resistance of the alloys to soil corrosion. Ferrous alloys containing large amounts of chromium had definitely lower rates of loss of weight than the other ferrous materials tested. They also had fewer pits per unit area, but the alloys containing chromium alone may pit deeply.

The addition of nickel to chromium-iron alloys appeared to improve the alloy with respect to loss of weight and depth of pits in soils. Tests of alloy sheets suggest that an alloy containing 23 per cent of chromium, 13 per cent of nickel, and 1.8 per cent of manganese may be less resistant to soil corrosion than an alloy containing somewhat smaller percentages of these elements.

The two ferrous alloys which contained both copper and nickel in considerable amounts resisted soil corrosion better than the other ferrous materials, with the exception of those containing large percentages of chromium. It is difficult to determine from the available data whether the results should be attributed to one or both of the alloying elements. Copper and its alloys corroded at much slower rates than the commonly used ferrous materials at most of the test sites.

Reference: Kirk H. Logan, Soil-Corrosion Studies, 1937, Corrosion-Resistant Materials and Special Tests, Journal of Research, October 1939, RP, 1250.

Limiting the Salt Content of Crude Oil For Refining

How much salt is considered a safe maximum to allow in crude oil which is to be refined in both straight-run and cracking stills?—S. W. C.

Salt is present in some crude oils in the water which is held in the oil, because salt is not soluble in oil. If it were possible to thoroughly dry the oil there would be no salt present. Salt usually means sodium chloride but the oil-field waters commonly contain other chlorides, calcium and magnesium chlorides being present in appreciable quantities. When making the analysis of an oil for salt the determination is confined to chlorine, so the total of all chlorides is stated in terms of common salt. The objection to the chlorides is that they decompose to produce hydrochloric acid and this acid is very corrosive to all of the ordinary metals. A second objection is the tendency they have to form deposits in the preheaters and tubes of the stills.

The formation of the acid from chlorides starts when the temperature reaches 300° F., so salty oils will cause damage through corrosion to the straight-run units. The depositions do not appear to form if the salt content is low, but the several chemical salts tend to accumulate in the residues when oil is distilled so there may be considerable quantities of corrosive-forming salts remaining in the charges that are run to the cracking stills.

As salt is an impurity of an oil, any quantity is objectionable. Because of the accidental presence of water, either free or as an emulsion, in a large part of the oil produced, it is the practice of the purchaser to make stipulations covering the quantity of both water and salt that may be present. The specification limiting the salt content is based on the 1,000-bbl. unit. The maximum appears to be 50 lb. per 1,000 bbl., but corrosion will occur when the quantity exceeds 25 lb. There is a tendency for the refiners to insist on a limit of 10 lb. and possibly this may be reduced to 5 lb.

Physical and Chemical Laws and Principles Used in the Petroleum Industry

SURFACE TENSION

Two fluids in contact exhibit phenomena, due to molecular attractions, which appear to arise from a tension in the surface of separation. It may be expressed as dynes per centimeter or as ergs per square centimeter. Dimensions—(mt^{-2}).

The total force along a line of length l on the surface of a liquid whose surface tension is T,

$$F = lT$$

Capillary tubes.—If a liquid of density d rises a height h in a tube of internal radius r the surface tension is:

$$T = \frac{rhdg}{2}$$

The tension will be in dynes per centimeter if r and h are in centimeter, d in g per cubic centimeter and g in centimeter per second squared.

Drops and bubbles.—Pressure in dynes per squared centimeter due to surface tension on a drop of radius r centimeter for a liquid whose surface tension is T dynes per centimeter:

$$P = \frac{2T}{r}$$

For a bubble of mean radius r centimeter,

$$P = \frac{4T}{r}$$

Butane Makes Excellent Fuel for Domestic and Industrial Use

I am interested in the heating quality of butane. Any information you may have relating to its use for heating homes would be appreciated.—J. C. B.

Butane extracted chiefly from natural gas and marketed in liquid form in special cylinders has a very high heating value. This is 21,331 B.t.u. per lb., equivalent to 103,465 B.t.u. per gal. The A.P.I. gravity of the liquid at 60° F. is 111.5 and the weight per gallon of liquid is 4.8544 lb.

The two forms in which butane is marketed for heating purposes is in cylinders, for domestic use, and mixed with air in special plants for distribution on a large scale. The cylinders or bottles are placed out of doors aboveground with connections being made to the pipe system as when handling any form of gas, the pipe conducting the gas to the appliance.

Butane is seldom used in the pure form because of its relatively high boiling point, or temperature at which it becomes liquid, 32.9° F. It may be used in warm climates but it is advisable to mix it with propane in localities where the temperature may fall below 32°. If the butane is stored underground then the difficulty of low temperature is not important.

Butane is used on a large scale for various heating processes in manufacturing establishments because of its high heating value and purity, being practically free from sulfur. When used in industrial plants, the butane is usually transported in special tank cars and stored underground at destination.

References: E. R. Weaver, "Propane, Butane, and Related Fuels," Circular C420, National Bureau of Standards. Handbook, Butane-Propane Gases.

Derivation and Meaning of Octane Expressions Above 100

Please explain the meaning of the word octane in the phrase "80-octane number." If the figures denote a percentage relation, what is the explanation of "125-octane gasoline"?—D. T.

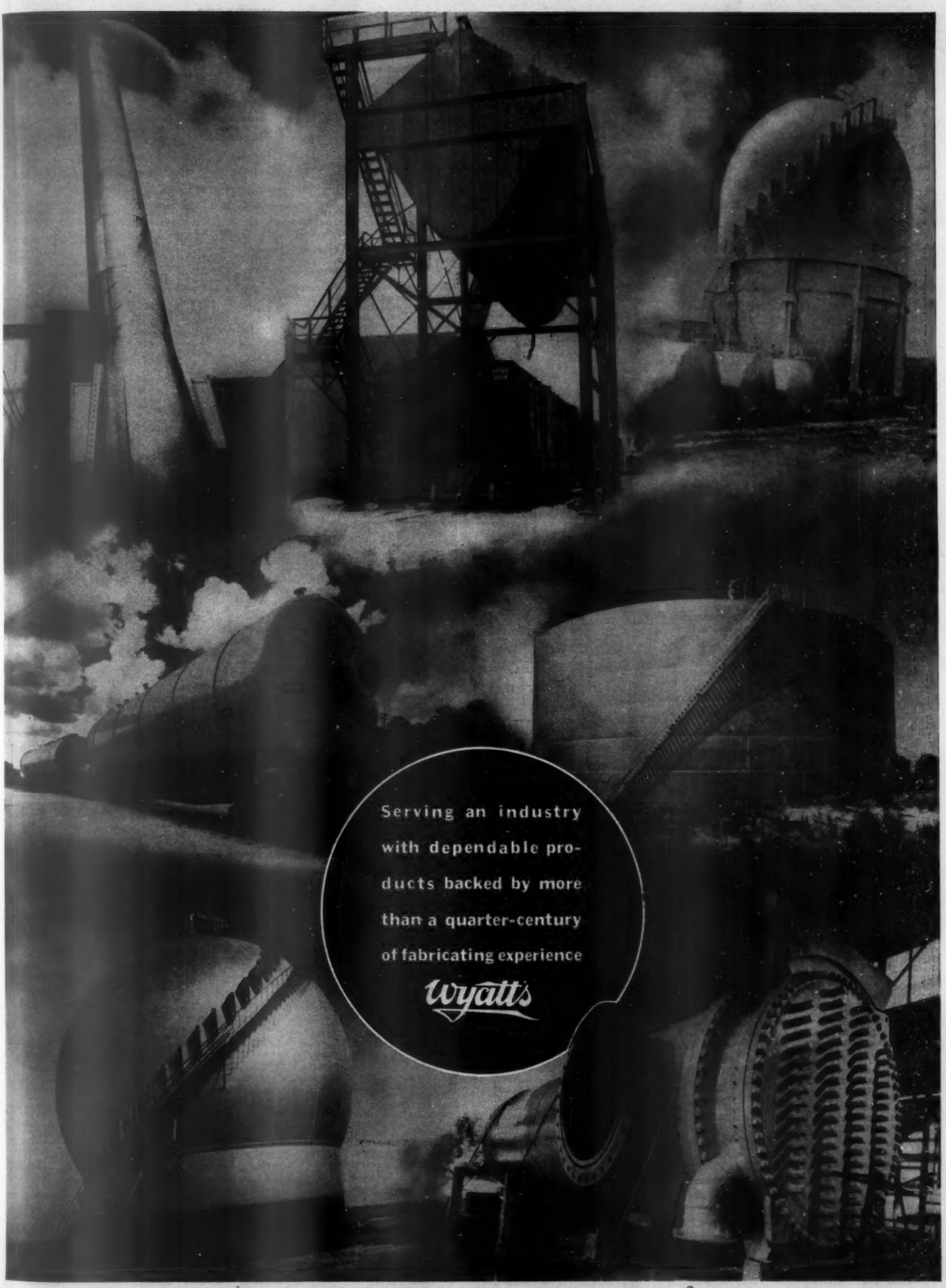
An 80-octane gasoline is one that matches in knock intensity a reference standard which equals a mixture containing 80 per cent isooctane and 20 per cent normal heptane.

A statement of octane rating above 100, such as 125, does not refer to a determination by the standard method but is based on an arbitrary extrapolation to indicate that the product appears to be that much better than isooctane.

Tables and curves may be prepared for the purpose of evaluating the antiknock rating of substances above 100. One suggestion for this purpose is data assembled from highest useful compression pressures, another is the behavior in the knock-testing apparatus of a 100-octane fuel plus so many cubic centimeters of tetraethyl lead.

The first expression, 80-octane rating, is based on an actual performance, the second, 125-octane value, is an estimated or hypothetical figure.

Questions on Petroleum Technology may be sent to Dr. Charles K. Francis, The Oil and Gas Journal, Tulsa, Okla. When a copy of the answer is desired, postage should be included.


Serving an industry
with dependable pro-
ducts backed by more
than a quarter-century
of fabricating experience
Wyatt's

Proven Reserves

(Continued from Page 55)

NORTH LOUISIANA

Discovery

Field and county; producing formation—	Acreage proven	Formation thickness	Estimated Reserves
Temple, Caddo	....	.....	100,000

ARKANSAS

Discoveries

Dorcheat, Columbia; Smackover lime	240	80	6,400,000
Lewisville, Lafayette; lower Glen Rose, Nacatoch	400	9	900,000
Total	640		7,300,000

Extension

Magnolia, Columbia; Smackover lime	3,500	140	150,000,000

MISSISSIPPI

Discovery

Tinsley, Yazoo; Selma chalk, Eutaw	600	15	2,400,000

OKLAHOMA

Discoveries

Caddo, Carter; Sycamore	160	.....	400,000
Sec. 16-9-2w, Cleveland; Simpson	80	.....	200,000
Norman, Cleveland; Wilcox	240	.....	600,000
East Bruce, Creek; Oswego	500	.....	750,000
West Nuyaka, Creek; Dutcher, Misener ,Wilcox	320	.....	2,400,000
West Walker, Creek; Bartlesville	120	.....	360,000
Sec. 23-6-8, Hughes; Booch	160	.....	480,000
Hobart, Kiowa; Viola	640	.....	3,200,000
Sec. 20-17-6, Lincoln; Prue	80	.....	80,000
Chism, McLain; Viola	400	.....	1,600,000
Jones, Oklahoma; Cleveland	240	.....	600,000
South Newalla, Oklahoma; Hunton	160	.....	480,000
Kaw, Osage; Burbank	360	.....	1,080,000
South Hickory Creek, Osage; Peru	400	.....	1,200,000
King, Pottawatomie; Simpson	480	.....	1,920,000
West King, Pottawatomie; Hunton	480	.....	2,400,000
Sacred Heart, Pottawatomie; Earlsboro	640	.....	2,240,000
North Bebee, Seminole; Hunton, sand	800	.....	2,800,000
East Searight, Seminole; Cromwell	240	.....	1,200,000
West Doyle, Stephens	180	.....	900,000
Milroy, Stephens; Hunton	320	.....	1,600,000
Total	7,000		26,490,000

Extensions

Cement, Caddo	....	.....	8,000,000
Coyle, Payne	....	.....	1,200,000
St. Louis, Pottawatomie	....	.....	4,000,000
Total	....		13,200,000

KANSAS

Discoveries

Felters, Barton; conglomerate	120	.....	420,000
Harzman, Barton; Lansing	120	.....	420,000
Krier, Barton; conglomerate	160	.....	640,000
Kruckenberg, Barton; Arbuckle	240	.....	1,240,000
Marchand, Barton; Arbuckle	480	.....	2,400,000
West Marchand, Barton; Arbuckle	320	.....	1,440,000
Pospishel, Barton; Arbuckle	240	.....	960,000
North Prusa, Barton; Arbuckle	160	.....	640,000
West Prusa, Barton; Lansing	160	.....	800,000
Ferrell, Butler; Mississippi lime	80	.....	240,000
Darien, Cowley; Arbuckle	200	.....	1,000,000
Rahn, Cowley; Bartlesville	100	.....	500,000
Johnson, Crawford; Tucker	80	.....	240,000
South Burnett, Ellis; Arbuckle	1,280	.....	19,200,000
Sowder, Greenwood; Burgess	80	.....	240,000
Gardner, Johnson; Bartlesville	80	.....	480,000
West Gardner, Johnson; Bartlesville	80	.....	400,000
Edna, Labette; Arbuckle	80	.....	400,000
North Bornholdt, McPherson; chat	800	.....	4,000,000
Clemmer, Montgomery; Arbuckle	100	.....	400,000
Van Patten, Norton; Lansing	80	.....	160,000
Bow Creek, Phillips; Lansing	160	.....	800,000
Cairo, Pratt; Viola	800	.....	3,200,000
Barngrover, Rice; Arbuckle	80	.....	600,000
West Brefeldt, Rice; Arbuckle	160	.....	800,000
Hodge, Rice; chat	240	.....	1,200,000
Lyons, Rice; Simpson	160	.....	960,000
Midway, Rice; Arbuckle	640	.....	2,560,000
East Orth, Rice; quartzite	160	.....	720,000
Proffitt, Rice; Arbuckle	40	.....	160,000
South Wherry, Rice; conglomerate	640	.....	3,840,000
North Atherton, Russell; Arbuckle	160	.....	640,000
North Fairfield, Russell; Lansing	160	.....	800,000
Southwest Letsch, Russell; Lansing	160	.....	800,000
West Trapp, Russell; Arbuckle	640	.....	2,560,000
Coyville, Wilson; Arbuckle	80	.....	280,000
Ainsworth, Barton; Topeka	80	.....	320,000
Beaver, Barton; shallow	120	.....	720,000
Kruckenberg, Barton; Lansing	80	.....	400,000
Prusa, Barton; basal	160	.....	640,000
Prusa, Barton; Lansing	80	.....	320,000
Burnett, Ellis; Lansing	80	.....	560,000
Silica, Rice; Lansing	400	.....	3,000,000
Coralena, Russell; Dodge	80	.....	400,000
North Fairfield, Russell; Arbuckle	160	.....	800,000
Max, Stafford; Lansing	80	.....	480,000
Total	11,500		63,780,000

Extensions

Bloomer (Habiger, Stumps), Barton-Rice-Ellsworth	....	.....	7,000,000
Hittle, Cowley	....	.....	3,200,000
Bemis (Cress, Shutts), Ellis	....	.....	20,000,000
Bornholdt, McPherson-Rice	....	.....	12,500,000
Chase, Rice	....	.....	3,000,000
Silica (South Silica, Ellinwood), Rice-Barton	....	.....	10,000,000
Wherry, Rice	....	.....	8,000,000
Trapp (South Trapp, Coralena), Russell-Barton	....	.....	20,000,000
Total	....	.....	83,700,000

NEBRASKA

Discovery

Field and county; producing formation—	Acreage proven	Formation thickness	Estimated Reserves
Falls City, Richardson	....	.....	50,000

ILLINOIS

Discoveries

Iola, Clay; Aux Vases	20	23	70,000
Hutton, Coles; Pennsylvanian	10	7	15,000
Cowling, Edwards; Cypress	80	23	280,000
Grayville, Edwards; McClosky	80	6	200,000
Whittington, Franklin; Aux Vases	40	.....	120,000
Junction, Gallatin; Waltersburg	40	21	100,000
Cravat, Jefferson; Bethel	40	19	100,000
Fairman, Marion; Clinton, Bethel	80	18	240,000
Tonti, Marion; Devonian, Bethel, Aux Vases, McClosky	320	15-25	1,440,000
Dundas, Richland; McClosky, Cypress	340	30	1,530,000
Stewardson, Shelby; Aux Vases	10	10	15,000
Griffin, Wabash; McClosky, Chester, Pennsylvanian	1,000	.....	6,000,000
Keensburg, Wabash; Cypress	670	25	2,345,000
Mount Carmel, Wabash; Tar Springs	60	18	210,000
Cordes, Washington; Bethel	720	7	1,440,000
Dubois, Washington; Bethel	60	15	150,000
Barnhill, Wayne; McClosky	460	7	2,070,000
Enterprise, Wayne; McClosky	720	11	2,304,000
Golden Gate, Wayne; McClosky	40	6	80,000
Calvin, White; McClosky	60	6½	180,000
Mill Shoals, White; McClosky, Aux Vases	500	27-30	2,250,000
New Harmony, White; McClosky, Aux Vases	200	9-12	600,000
Phillipstown, White; Aux Vases	80	22	200,000
Springerton, White; St. Louis	100	21	350,000
Stokes, White; McClosky	200	12	700,000
Storms, White; Waltersburg	640	25	1,920,000
Total	6,570		24,909,000

Extensions

Clay City, Clay-Wayne; McClosky, Cypress	4,200	10-12	18,860,000
West Clay City, Clay; McClosky	150	7	430,000
Bartelso, Clinton; Devonian	40	8	120,000
Louden, Fayette; Bethel, Paint Creek, Weller	15,400	25-35	140,625,000
St. James, Fayette; Cypress, Tar Springs	210	10-18	750,000
Dix, Jefferson; Bethel	1,200	11½	5,480,000
Ina, Jefferson; St. Louis	15	.....	30,000
Roaches, Jefferson; McClosky	50	7	140,000
Centralia, Marion-Clinton; Devonian, Bethel, Cypress	1,080	8-25	4,320,000
Salem, Marion; Devonian, Salem, McClosky, Chester	9,120	12-55	210,000,000
Sandoval, Marion; Devonian	460	4	1,500,000
Noble, Richland; McClosky	1,900	7½	7,650,000
North Noble, Richland; McClosky, Weller	750	22	4,500,000
South Noble, Richland; McClosky	140	5	396,000
Schnell, Richland; McClosky	15	6	40,000
Aden, Wayne; McClosky	20	9	70,000
North Aden, Wayne; McClosky	200	11	900,000
Boyleston, Wayne; McClosky	2,070	10	6,600,000
Clsne, Wayne; McClosky	480	11	1,950,000
Leech, Wayne; McClosky	80	8	320,000
Total	37,580		404,161,000

INDIANA

Discoveries

North Francisco, Gibson; McClosky	360	8	1,260,000
Griffin, Gibson; McClosky, Chester, Pennsylvanian	1,400	8-24	6,300,000
Mumford (Heston), Gibson; McClosky	180	7	540,000
Hazelton, Knox; Mississippian	20	18	60,000
Ribeyre Island, Posey; Tar Springs, Waltersburg	200	18-20	800,000
Enterprise, Spencer; McClosky, Cypress, Aux Vases	100	9-22	500,000
Millersburg, Warrich; McClosky	20	7	60,000
Total	2,280		9,520,000

Extension

Heusler, Posey; Tar Springs	200	16	560,000

KENTUCKY

Discoveries

Thurston, Daviess; McClosky	40	7	160,000
Corydon, Henderson; McClosky	60	5	180,000
Reed, Henderson; McClosky	40	7	140,000
Livermore, McClean; McClosky	80	6	240,000
Belton, Muhlenburg; McClosky	80	6	240,000
Total	300		960,000

MICHIGAN

Discoveries

Hopkins, Allegan; Traverse	100	2	250,000
Wise, Isabella; Dundee	300	8	1,050,000
Walker, Kent; Traverse	2,700	5½	7,560,000
Wyoming, Kent; Traverse	2,000	5½	5,600,000
Cakscalien, Ottawa; Traverse	20	2½	30,000
Zeeland, Ottawa; Traverse	20	1	30,000
South Zeeland, Ottawa; Traverse	20	1	30,000
Bangor, Van Buren; Traverse	140	3	350,000
Clapsaddle, Van Buren; Traverse	160	11	480,000
Gobles, Van Buren; Traverse	20	3	30,000
Porter, Van Buren; Traverse	20	1	30,000
Total	5,500		15,440,000

Extensions

New Salem, Allegan	380	.....	1,140,000
Salem, Allegan	260	.....	780,000
Clayton, Arenac	160	.....	400,000
Freeman-Redding (Van Horn), Clare	460	.....	1,610,000
Bloomingdale, Van Buren	160	.....	168,000
Columbia, Van Buren	160	.....	400,000
Southeast Columbia, Van Buren	160	.....	400,000
Total	1,740		4,898,000

Demand for All Products Expanded During 1939

THE demand for all the principal refinery products in 1939 increased substantially over 1938, according to Bureau of Mines reports covering the first 11 months of last year. In the case of gasoline, distillate, gas oil and kerosene the total demand in 1939 established new yearly records.

The new record in total demand for gasoline was made in 1939 despite a small decrease in exports. The increase in domestic demand was greater than expected at the start of last year, the gain for the entire 12 months being approximately 30,000,000 bbl., or nearly 6 per cent. This domestic gain was brought about by a recovery in the automobile business resulting in increased motor vehicle registrations in all parts of the country. A report covering gasoline tax receipts for the first 10 months of 1939 showed that gasoline consumption in all the 48 states and District of Columbia was running ahead of the same period of any previous year.

Outlets for kerosene, both domestic and export, were substantially greater than in 1938. The export demand was particularly strong during the latter part of the year, part of the gain being due to the greater requirements of Great Britain and France.

The increase in demand for products classed as gas oil and distillate was greater than that of any other major product with the exception of lubricating oils. This trend has been under way for several years, reflecting new uses as fuel, light and diesel fuel for internal-combustion engines.

The demand for residual fuel oils recovered in 1939 after a slump in 1938 compared to 1937. This was brought about by recovery in general industry in 1939, particularly the latter part of the year. The marine trade, industrial plants and railroads are the principal consumers of the low-gravity fuel oils. The accompanying table summarizes the latest available production, consumption and stock data of the Bureau of Mines:

United States Supply and Demand—Crude Oil (Bbl.)

11 MONTHS—	TOTAL SUPPLY	TOTAL DEMAND	EXCESS DEMAND	EXCESS PCT.	DOMESTIC PRODUCTION	IMPORTS	INDICATED DOMESTIC DEMAND‡	EXPORTS	STOCKS REFINABLE CRUDE NOV. 30
1939	1,180,213,000	1,222,549,000	42,336,000	3.5	1,149,446,000	30,767,000	1,155,132,000	67,417,000	‖234,027,000
Daily average	3,533,000	3,660,000	.....	....	3,441,000	92,000	3,458,000	202,000	.....
1938	1,135,460,000	1,165,263,000	29,803,000	2.6	1,111,908,000	23,552,000	1,092,892,000	72,371,000	273,770,000
Daily average	3,400,000	3,489,000	.....	...	3,329,000	70,000	3,272,000	217,000	.....
Increase, 1939	44,753,000	57,286,000	.....	....	37,538,000	7,215,000	62,240,000	†4,954,000	†39,743,000
	3.9%	4.9%	.....	....	3.4%	30.5%	5.7%	†6.8%	†14.5%

Supply and Demand—Refinery Products Motor Fuel (Bbl.)

11 MONTHS—	TOTAL SUPPLY	TOTAL DEMAND	EXCESS DEMAND	EXCESS PCT.	DOMESTIC PRODUCTION	IMPORTS	DOMESTIC DEMAND	EXPORTS	STOCKS NOV. 30§
1939	555,705,000	550,286,000	*5,419,000	*1.0	555,590,000	115,000	508,863,000	41,423,000	76,198,000
Daily average	1,664,000	1,647,000	....	....	1,163,000	344	1,523,000	124,000	.....
1938	521,122,000	525,947,000	4,825,000	0.9	521,043,000	79,000	481,261,000	44,686,000	69,825,000
Daily average	1,560,000	1,575,000	.....	....	1,560,000	236	1,441,000	134,000	.....
Increase, 1939	34,583,000	24,339,000	.....	....	34,547,000	36,000	27,602,000	†3,263,000	6,373,000
	6.6%	4.6%	.....	....	6.6%	45.6%	5.7%	†7.3%	9.1%

Kerosene

1939	62,699,000	61,479,000	*1,220,000	*2.0	62,699,000	.....	53,888,000	7,591,000	9,019,000
1938	58,841,000	56,248,000	*2,593,000	*4.4	58,841,000	.....	49,547,000	6,701,000	9,676,000
Increase, 1939	3,858,000	5,231,000	.....	....	3,858,000	.....	4,341,000	890,000	†657,000
	6.5%	9.3%	.....	....	6.5%	.....	8.8%	13.3%	†6.8%

Gas Oil and Residual Fuel Oil¶

1939	442,448,000	452,354,000	9,906,000	2.2	427,189,000	15,259,000	406,161,000	46,193,000	121,645,000
1938	426,818,000	407,253,000	*19,565,000	*4.8	407,590,000	19,228,000	363,842,000	43,411,000	133,638,000
Increase, 1939	15,630,000	45,101,000	.....	....	19,599,000	†3,969,000	42,319,000	2,782,000	†11,993,000
	3.7%	11.1%	.....	....	4.8%	†20.6%	11.6%	6.4%	†8.9%

Gas Oil and Distillate Fuels

1939	147,408,000	145,678,000	*1,730,000	*1.2	147,237,000	171,000	115,655,000	30,023,000	30,179,000
1938	137,901,000	128,983,000	*8,918,000	*6.9	137,901,000	.....	101,755,000	27,228,000	32,069,000
Increase, 1939	9,507,000	16,695,000	.....	....	9,336,000	.....	13,900,000	2,795,000	†1,890,000
	6.9%	13.0%	.....	....	6.8%	.....	13.7%	10.3%	†5.9%

Residual Fuel Oils

1939	295,040,000	306,676,000	11,636,000	3.8	279,952,000	15,088,000	290,506,000	16,170,000	91,466,000
1938	288,917,000	278,270,000	*10,647,000	*3.8	269,689,000	19,228,000	262,087,000	16,183,000	101,569,000
Increase, 1939	6,123,000	28,406,000	.....	....	10,263,000	†4,140,000	28,419,000	†13,000	†10,103,000
	2.1%	10.2%	.....	....	3.8%	†21.5%	10.8%	†0.1%	†9.9%

Lubricating Oils

1939	31,558,000	32,459,000	901,000	2.8	31,558,000	.....	21,788,000	10,671,000	6,799,000
1938	28,442,000	28,143,000	*299,000	*1.0	28,442,000	.....	19,402,000	8,741,000	7,817,000
Increase, 1939	3,116,000	4,316,000	.....	....	3,116,000	.....	2,386,000	1,930,000	†1,018,000
	10.9%	15.3%	.....	....	10.9%	.....	12.3%	22.1%	†13.0%

Petroleum Wax (Lb.)

1939	451,579,000	499,550,000	47,971,000	9.6	416,080,000	35,499,000	281,489,000	218,061,000	81,369,000
1938	427,385,000	440,605,000	13,220,000	3.0	399,280,000	28,105,000	261,469,000	179,136,000	131,772,000
Increase, 1939	24,194,000	58,945,000	.....	....	16,800,000	7,394,000	20,020,000	38,925,000	†50,403,000
	5.7%	13.4%	.....	....	4.2%	26.3%	7.7%	21.7%	†38.2%

*Excess supply. †Decrease. ‡Crude only. §Includes finished and unfinished refinery gasoline and natural gasolines. ¶Gas oil and fuel oil equals gas oil and distillate fuels plus residual fuel oils. Note: Total supply equals domestic production plus imports. Total demand equals domestic demand plus exports. Data on demand for refined products based on refinery shipments. ‖Does not include 13,664,000 bbl. of heavy oils in California. Comparable figure for Nov. 30, 1938, 16,765,000 bbl.

Crude Oil Run to Stills and Total All Oils (Bbl.)

11 MONTHS—	TOTAL IMPORTS§	TOTAL EXPORTS§	TOTAL CRUDE TO STILLS	PER CENT YIELD GASOLINE‡	NATURAL GASOLINE PRODUCTION	TOTAL SUPPLY ALL OILS*	TOTAL DEMAND ALL OILS*	STOCKS ALL OILS NOV. 30*
1939	54,814,000	174,769,000	1,132,005,000	44.9	45,426,000	1,251,851,000	1,294,636,000	511,685,000
Daily average	164,000	523,000	3,389,000	....	136,000	3,748,000	3,876,000	.....
1938	48,945,000	177,608,000	1,067,051,000	44.2	46,916,000	1,209,340,000	1,210,622,000	563,715,000
Daily average	146,000	531,000	3,194,000	....	140,000	3,621,000	3,625,000	.....
Increase, 1939	5,869,000	†2,839,000	64,954,000	....	†1,490,000	42,511,000	84,014,000	†52,030,000
	12.0%	†1.5%	6.1%	....	†3.2%	3.5%	6.9%	†9.2%

*Total all oils includes crude and refined products, natural gasoline and benzol. Stocks Nov. 30, 1939, represented 132 days' supply which compared to 156 days on the same date in 1938. †Decrease. ‡Does not include natural gasoline blended at refineries. §Includes crude oil and refinery products. In case of imports includes receipts in bond and for domestic use. All data based on Bureau of Mines reports.

3½ or 120 H.P.
15 or 15000 B.P.D.
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REDA PUMP CO.

BARTLESVILLE, OKLA.

THE ONLY SUBMERGIBLE ELECTRICAL CENTRIFUGAL OIL WELL PUMP

FIELD OPERATIONS

Summarizing the Week's Developments

OKLAHOMA—A 3,307-bbl. well was completed in the Cement field, Caddo County. A 2,960-bbl. well was completed in the St. Louis field, Pottawatomie County. The second producer was completed in the Byers pool, McClain County, and an oil well was added in the new Hobart field, Kiowa County. A new producing area was opened in Okfuskee County and another outpost well in that county gave promise of opening a pool. A 2,000,000-cu. ft. shale gas well was completed in Wagoner County.

KANSAS—The Hall pool in Russell County was extended ½ mile eastward. The Zenith field, Stafford County, was extended one location northward in an area previously "condemned" by a failure. An outpost ¼ mile north of the Michel pool, Russell County, was showing as an extension well. A 77,225,000-cu. ft. gas well was completed in the Cunningham field, Kingman County.

TEXAS: Gulf Coast—A Tertiary Wilcox test in the Willis area, Montgomery County, was showing gas and distillate. Five wildcat locations were announced in Harris, Liberty, Waller and Matagorda counties.

West Texas—The Slaughter pool extension development in Hockley County includes a 17-well drilling program by one company. Two more link wells between the North Cowden and Foster fields in Ector County were completed, leaving little more than half a mile between the pools not proved up. New pay horizons were opened in Crane County and in the North Cowden pool in Ector County.

North and East Texas—The deepest wildcat in North Texas, north of Bowie, Montague County, is being tested for production at a total depth of 7,338 ft. The 4,400-ft. pay in the Hull-Silk pool was extended ½ mile southeasterly. In eastern Texas, the Grapeland gas field in Houston County will soon have eight wells drilling. Thirteen locations were staked in the East Texas field.

Southwest Texas—An Argo-sand pool was opened 2 miles east of Mirando-sand production in the Peters field in Duval County. A wildcat 5 miles northwest of the Clara Driscoll field in Duval County was dry. It was on Driscoll property. Six miles northwest of the Fitzsimmons field a test on another Clara Driscoll property was also a failure. Live Oak and Bee counties will be given Tertiary Wilcox tests. The Kelsey field, lying in Jim Hogg, Brooks and Starr counties, was further extended. A 912-bbl. well producing from Austin chalk was reported from the Pearsall field in Frio County.

LA-ARK-TEX—Zero weather halted most of the drilling late in the past week, but a west extension to the Magnolia field in Columbia County, Arkansas, was being washed in. The deep Lisbon, Louisiana, well tested 142 bbl. in 24 hours last week.

ILLINOIS—A new production peak was established in Illinois with an average of 366,931 bbl. per day. The increase was general. A 6,224-bbl. well, producing from Devonian lime on a lease of W. C. McBride, Inc., in the Salem field, was the largest of the 51 oil wells completed in the state. Twenty-four dry holes in 11 counties were also completed. A new pool was in prospect in Wabash County.

MICHIGAN—A new gas pool in Hamilton Township, Clare County, was opened by a well variously estimated from 5,000,000 to 8,000,000 cu. ft. per day. The Tallmadge field in Ottawa County had five new oil wells and Kent County nine.

Completions in All Fields

(Week Ended January 20, 1940)

	Oil	Gas	Dry	Total	1940 total comp. to date	1939 total comp. to date
N. Y., Pa., and W. Va.	51	16	3	70	285	233
Ohio	6	5	3	14	70	66
Indiana	1	0	1	2	24	10
Kentucky	2	0	2	4	21	44
Illinois	51	2	24	77	260	290
Michigan	20	1	9	30	106	69
Kansas	13	2	8	23	98	68
Oklahoma	15	2	11	28	126	107
Texas:						
North Central Texas	33	1	13	47	219	121
West Texas	29	0	2	31	184	115
Texas Panhandle	11	5	0	16	47	22
East Texas	7	0	1	8	19	64
East Central Texas	1	0	1	2	23	20
East Texas Border	0	0	1	1	3	4
Gulf Coast Texas	18	0	3	21	103	85
Southwest Texas	19	1	17	37	165	134
Total Texas	118	7	38	163	763	565
North Louisiana	5	1	9	15	50	33
Gulf Coast Louisiana	8	0	2	10	68	44
Total Louisiana	13	1	11	25	118	77
Arkansas	1	0	3	4	21	26
Montana	1	0	0	1	17	8
Wyoming	3	0	2	5	17	5
Colorado	0	0	0	0	2	1
New Mexico	12	0	2	14	72	45
California	13	0	2	15	80	61
Total United States	320	36	119	475	2,080	1,675
Total previous week	334	45	112	491		
Week ended Jan. 21, 1939	314	27	88	429		

Outstanding Fields—Highlights

(Week Ended January 20, 1940)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
K.M.A.	27	36	5	3,488	1,237	25,596
Wasson-Bennett	26	78	5	1,570	615	25,212
Ector County	22	64	10	13,851	1,932	53,198
Pecos County	5	23	2	148	1,281	33,950
Jones County	6	17	4	6,265	573	7,950
East Texas	7	14	7	337	26,005	394,495
OKLAHOMA						
St. Louis	6	25	2	1,349	921	35,100
Cement	6	21	1	3,307	284	6,750
KANSAS						
Barton County	6	20	0	0	460	14,505
Ellis County	4	18	5	1,525	473	12,525
Rice County	3	23	0	0	1,421	28,845
Russell County	5	25	5	1,835	1,455	30,585
NEW MEXICO						
Lea County	11	45	5	1,570	2,361	86,470
Eddy County	7	52	7	2,185	506	14,400
LA-ARK-TEX						
Cotton Valley, La. (deep)	1	3	1	265	153	13,435
Magnolia, Ark.	0	9	0	0	84	20,250
MICHIGAN						
Freeman-Redding	2	11	0	0	136	14,702
Kent County	4	39	9	1,297	264	16,786
CALIFORNIA						
Montebello	2	19	3	1,143	346	26,350
ILLINOIS						
Salem	21	90	23	19,055	1,597	211,988
Louden	7	45	13	2,684	1,306	75,611
Other basin fields	36	199	15	3,401	2,062	71,826
Other fields						7,506

California Field Report

By
L. P. STOCKMAN

Montebello Field Most Active Drilling District in California

LOS ANGELES, Calif., Jan. 22.—The Montebello field of Los Angeles County, with 19 strings of tools, is still the most active district in California, but if the rate of decline during the past several weeks continues it will drop below Kettleman North Dome field within a week and below Coalinga within another fortnight. The decline is due to most of the inside locations being drilled up and most of the present work is around the edges. The limits of production have been fairly well defined, in most cases by the results of drilling as few dry holes have been drilled so far as La Merced zone is concerned. When wells show edgewater it usually follows that the outer limits are very close and it is this type of well that has defined the limits. The west end of the structure is still wide open south of Beverly Boulevard but Texas Co. appears to have defined the limits north of the boulevard. Aviation Petroleum Co. is making preparations to begin work on No. 1 Montebello, the most westerly well which will determine the status of La Merced zone at this point. This field is one of the hardest to gage because of the irregularity of the sands, there being no single pattern that applies to all zones. La Merced zone is the best productive zone discovered in Montebello to date and consequently the heaviest developed and has the largest area.

On the Wilcox lease in the western end of the field, Texas Co. finished a normal well this week when No. 3 was brought in flowing 245 bbl. of 36.1-gravity oil and 950,000 cu. ft. of gas from La Merced zone at 7,698 ft. This well is about one location northwest of production. George F. Getty, Inc., and Pacific Western Oil Co. jointly developing the Porter-Simmons lease completed their initial well when No. 1 Porter-Simmons was brought in flowing 280 bbl. of 36.2-gravity and 900,000 cu. ft. of gas from La Merced zone with bottom at 7,598 ft. These operators have tentatively staked location for No. 1 Pfister near Wilcox and Washington avenues. R. R. Bush Oil Co. has completed No. 1 Newhouse flowing 618 bbl. of 36.4-gravity oil and 1,400,000 cu. ft. of gas at 7,713 ft.

Los Angeles Basin

Ohio Oil Co. has controlled No. 8 Gough in the El Segundo field, which blew out. The flame was blown out with live steam. The flow was estimated at about 40,000,000 cu. ft. No oil came to the surface.

Barnsdall Oil Co.'s No. 8 Rancho San Francisco in the Newhall field was brought in flowing 838 bbl. of 33.9-gravity oil and 600,000 cu. ft. of gas through a 7/64-in. bean from 7,373 ft. Crew and equipment were transferred to No. 1 Rancho San Francisco, the discovery well, preparatory to deepening it from the first to the third zone. It was originally bottomed at 6,472 ft. from which it produced for several years.

Wasco

Standard Oil Co. completed another well in the Wasco field of Kern County when No. 3 Mushrush, Section 7-27-24, was brought in flowing 3,220 bbl. of 36.3-gravity oil and 2,500,000 cu. ft. of gas from the upper zone with bottom at 13,130 ft.

Coalinga

Superior Oil Co. completed a well in the Northeast Coalinga field, No. 2 Husong, Section 18-19-16, flowing 1,968 bbl. of 27.6-gravity oil through 26/64-in. bean. The crew has been moved to No. 3 Husong. Union Oil Co., which recently completed two new wells in Northeast Coalinga and has a drilling well under way, is rigging up tools on No. 68-18 Cook in Section 18-19-16. In the area between the Northeast and Southeast Coalinga fields, Bandini Petroleum Co. is drilling in a hard sand in No. 51-30-B in Section 30-19-16 at 7,500 ft. and is nearing where the pay is anticipated. In the extreme southern end of the Southeast Coalinga field, Universal Consolidated Oil Co. has completed derrick for No. 61-24-C in Section 24-20-15.

Kettleman Hills

Standard Oil Co. completed two new wells in Kettleman North Dome. In Section 21-22-18 it finished No. 52-21-Q flowing 2,370 bbl. of 37.3-gravity oil and 1,700,000 cu. ft. of gas from the Temblor with bottom at 8,195 ft. In Section 7-22-18 Standard completed No. 54-7-Q flowing 1,020 bbl. of 36.9-gravity oil and 1,100,000 cu. ft. of gas from the Temblor at 8,560 ft. Both of Standard's projected Eocene wells, No. 27-19-J and No. 72-19-J in Section 19-21-17 in the western end of the structure, are held up with mechanical trouble.

The plan sponsored by Kettleman North Dome Association regarding future drilling and production activities in the Eocene has been approved by all but one operator and it is believed the plan will be approved by all shortly.

Greeley—Ten Section

Drilling operations in the Greeley field of Kern County have been kept at a low ebb for more than a year but Standard Oil Co. may have to step up the rate of work to offset well for well with General Petroleum Corp. Neither will precipitate aggressive drilling but control of the field has changed now that General Petroleum Corp. also has production in the Greeley field. At present Standard has three wells under way and General Petroleum Corp. is running one string. Shell Oil Co. completed a well in the Ten Section field when No. 4-28-A Kern County Land in Section 28-30-26 was brought in flowing 3,504 bbl. of 33.4-gravity oil and 2,640,000 cu. ft. of gas from the Stevens sand, with bottom at 8,220 ft. This new well is in the east side of the field. Shell Oil Co., Inc., has just completed derricks for No. 34-28-A Kern County Land in Section 28-30-26 and for No. 83-29-A Kern County Land in Section 29-30-26.

Coastal District

Union Oil Co. completed No. 2-5 O'Donnell in Section 29-10-34 in the hot spot section of the Santa Maria Valley field, and spudded in No. 1 Russell & Lollier in Section 20-10-34. No. 2-5 O'Donnell was brought in flowing at the rate of 3,190 bbl. of 15.4-gravity oil and 260,000 cu. ft. of gas from 5,640 ft. It was cut back to a nominal amount. Union Oil Co. is preparing to drill an offset to No. 1 Los Flores of Standard Oil Co. in the Cat Canyon section of Santa Barbara County. Chanslor Canfield Midway Oil Co. which has been developing acreage in the Rincon field of Ventura County should finish No. 26-B Hobson in Section 16-3-24 shortly. No. 10-A on Hobson lease B got a wet job at 4,521 ft. and has been recemented. The Rincon Development Co., which several months ago took over the well and equipment on the steel island in the Pacific Ocean, off the Rincon field, has decided to abandon this lease. The high seas undermined the foundations of the steel island and pitched the derrick into the water.

Wilmington

Drilling operations resulted in the completion of only one well in the Wilmington field, but several are scheduled for completion. The new completion was No. 1 Harbor of Edco Petroleum Co., pumping 190 bbl. of 14.9-gravity oil from the Ranger zone with bottom at 3,437 ft. In the Potrero field Basin Oil Co. completed No. 6 Potrero in Section 34-2-14 flowing 430 bbl. of 43.7-gravity oil from 3,769 ft. In the Long Beach field Coast Supply Co. recompleted No. 1 Leibert pumping 100 bbl. of 22.6-gravity oil cutting 20 per cent from 3,635 ft.

San Joaquin Basin

In the Midway-Sunset field of Kern County, Oxford Oil Co. has completed No. 7 M.S. pumping 112 bbl. of 13.1-gravity oil from 1,700 ft. Standard's recent completion of No. 1 Bryson in the Delano gas field as a commercial producing well has resulted in the decision to drill two additional wells, No. 2 Bolz in Section 33-24-23 and No. 2 Bryson in Section 28-24-23. Trico Oil & Gas Co. has been considering additional development. Accordingly, Standard is building rig for No. 2 Bolz in Section 33-24-23, and has finished the derrick for No. 2 Bryson in Section 28-24-23. Trico Oil & Gas Co. has been considering the advisability of undertaking additional development but has not reached a final decision. A pipe line laid jointly by Southern California Gas Co. and Pacific Gas & Electric Co. provided this field with an outlet in 1939 for production. Up to this time no pipe-line facilities were available and hence production of the field was restricted.

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	January 14		January 7			
Intercoastal-domestic—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Fuel oil	.....	.....	.....	.....	.....	61,980
Diesel and gas oil	.....	.....	.....	.....	.....	91,133
Foreign exports—						
Crude oil	73,657	10,522	101,723	14,532	175,380	337,365
Fuel oil	.....	.....	64,716	9,245	64,716	395,076
Diesel and gas oil	124,988	17,855	71,145	10,164	196,133	201,783
Gasoline	111,678	15,954	.....	.....	111,678	339,404
Kerosene	13,080	1,869	8,347	1,192	21,427	75,080
Coastwise-domestic—						
Crude oil	210,149	30,021	238,009	34,001	448,158	451,873
Fuel oil	200,165	28,595	339,122	48,446	539,287	271,061
Diesel and gas oil	39,436	5,634	75,212	10,730	114,648	61,969
Gasoline	243,188	34,741	290,166	41,452	533,354	425,567
Kerosene	18,677	2,668	10,807	1,544	29,484	.....

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Diesel and gas oil	69,985	9,998	.....	.....	69,985	.....
Lubricants	3,610	516	.....	.....	3,610	.....
Foreign exports—						
Crude oil	43,120	6,160	.....	.....	43,120	.....
Fuel oil	29,694	4,242	30,162	4,309	59,856	.....
Diesel and gas oil	22,476	3,211	28,149	4,021	50,625	.....
Gasoline	175,958	25,137	.....	.....	175,958	.....
Kerosene	7,180	1,026	.....	.....	7,180	.....
Lubricants	782	112	.....	.....	782	.....
Coastwise-domestic—						
Fuel oil	161,285	23,041	98,141	14,020	259,426	401,917
Diesel and gas oil	20,069	2,867	30,216	4,317	50,285	85,488
Gasoline	201,550	28,793	143,818	20,545	345,368	447,576
Kerosene	26,741	3,820	19,842	2,849	46,683	69,368

Devonian Lime Yields Batch of Large Wells in Salem Pool

By STAFF CORRESPONDENT

CENTRALIA, Ill., Jan. 22.—Despite the wintry blasts which sent the thermometer to 10 degrees below zero, Illinois operators maintained their average by completing 77 tests during the past week and starting 73 new ones, 11 of them wildcats and 7 of them Devonian tests in the Salem pool. The roads for the most part were open and moving conditions in the field good, the main difficulty being the digging of pits for drilling fluid, ditches for burying water lines, freezing of water lines and practically impossible task of erecting derricks.

The largest well of the week was completed by W. C. McBride, Inc., on its N. L. Lee lease, NE NE Section 29-2n-2e, the site of the largest McClosky well ever completed. The new well, No. 17 Lee, flowed 6,224 bbl through the casing and tubing from Devonian pay at 3,408-28½ ft.

A new field, the first for the year, was in prospect in Wabash County, the Omera Brothers' No. 1 J. C. Utter, SE SE NE Section 17 1s-12w, getting 200 ft. of oil in the hole after drilling plug from casing perforated opposite Cypress shows at 2,032-37 ft. and 2,043-51 ft. The test was originally drilled to the McClosky at 2,432-43 ft. and has been successively plugging back when the deep formation showed water. The test is located approximately 4 miles east of Keensburg pool.

In Jasper County, it appeared that the efforts of the Mammoth Producing & Refining Co. to extend the Dundas pool of Richland County would be rewarded when the McClosky lime found at 2,923-29 ft. showed oil. The test is No. 1 Johnoff, NE SE Section 24-5n-9e, and has experienced considerable difficulty in getting a water shutoff, four cementing jobs being attempted. The test was reported last week as having 700 ft. of oil in the hole

The New Harmony pool in White County seemed destined for another producing zone when Superior Oil Co.'s No. 1 E. B. Greathouse, SW SE NW Section 4-5s-14w, had 1,500 ft. of oil in the hole on a drill-stem test open 15 minutes. The test was taken in the McClosky lime at 2,907 ft. Other wells in the pool are producing from the Waltersburg sand at approximately 2,200 ft.

The third test to the Devonian lime in the Bartelso field in Clinton County set pipe on top of pay at 2,389-99 ft. and the second test in the field is in the process of completion. In the Tonti pool in Marion County, Tex Harvey was running tubing preparatory to testing his No. 6 Kagy, which flowed 6 bbl. an hour last week with the swab stuck in the hole. The Fairman pool in Townships 3n-1w and 3n-1e gave indications of having productive possibilities in the Aux Vases sand when the Cascade Oil Co. recovered 12 ft. of saturated sand from its No. 4 Adams, NE SE NE Section 13-3n-1w. The test was dry in the Benoist sand and was deepened, picking up the Aux Vases at 1,450 ft.; total depth of the test is 1,462 ft. with casing set to test the pay.

The second Devonian test in the Centralia townsite pool was not yet completed although the Burnham and Johnson's No. 1 Bailey-Marshall in Block 2 of Pullen subdivision made 50 bbl. of oil in 50 minutes following a 500 gal. acid treatment. The well was being swabbed in an effort to keep it flowing. Five new Devonian starts were listed for the pool.

Big Wells From Lime

In the Salem pool, Texas Co. completed seven McClosky wells with a total initial of 1,855 bbl., three sand wells with a total initial of 441 bbl. and one Devonian well for 3,035 bbl. Magnolia Petroleum Co. completed three McClosky wells with an initial of 485 bbl. and a 96-bbl. sand well. Shell Oil Co., Inc., completed a 3,582-bbl. Devonian well and independents completed a pair of Devonian wells for 9,561 bbl. Magnolia also completed a salt-water disposal well, Texas Co. abandoned a location and independents abandoned two locations. Elsewhere in Marion County independents abandoned one location and also chalked up a dry hole. New work in Marion County was confined to the Salem pool where the Texas Co. started seven McClosky tests, two sand wells and seven Devonian tests. Magnolia started seven Devonian tests, Shell started six Devonian tests, Ohio Oil Co. started one Devonian test and independents started six Devonian tests and one sand test.

Lewis Clements, an independent operator, stole the show from Carter Oil Co. in the Louden field in Fayette County, when he completed eight wells on his Emily Woods lease in Section 16-8n-3e for a total initial of 650 bbl.; the wells were only tested for six hours. Carter Oil Co. completed four wells for an initial of 1,794 bbl. and independents completed two others for an initial of 240 bbl. In the St. James pool Ohio Oil Co. completed two tests and Texas Co. completed two more for a total initial of 576 bbl. Carter started 10 new tests in the Louden pool and Minerva Oil Co. started two more, Zephyr Drilling Co. was starting one in the St. James pool.

Completions for the week were as follows:

Salem Field

In Township 2n-2e of the Salem field Texas Co. completed the following wells: No. 9 W. Martin, NE SE SE Section 17, Ste. Genevieve 2,043 ft., pay 2,045-66 ft. in streaks, pumped 119 bbl.; No. 13 S. Stonecipher, C N½ SE SW Section 32, McClosky 1,932-87 ft. in streaks, pumped 322 bbl.; No. 13 W. Richardson, SE SE NW Section 32, McClosky 1,896-1,957 ft. in four streaks, pumped 224 bbl.; No. 7 Mac Roberts, SW SE NE Section 32, Benoist 1,725 ft.; Aux Vases 1,785 ft., total depth 1,845 ft., shot with 100 qt., pumped 147 bbl.; No. 15 J. Friesner, C N½ SE NW Section 32, McClosky 1,904-85 ft. in streaks, pumped and flowed 147 bbl.; No. 8 E. Farthing, C S½ NW SE Section 32, McClosky 1,942-2,017 ft. in streaks, flowed 224 bbl.; No. 13 F. Stroup, SE SE SW Section 30, Benoist 1,786 ft., Aux Vases 1,821 ft., total depth 1,830 ft., 25-qt. shot, pumped 140 bbl.; No. 12 C. Kleinschmidt, NW SW NE Section 28, McClosky 2,026-67 ft. in streaks, pumped 112 bbl.; No. 21 N. Young, NW SE NE Section 20, Devonian pay 3,377-3,429 ft., acidized with 1,000 gal., flowed 3,035 bbl. In the same township Magnolia Petroleum Co. completed the following: No. 45 W. O. Chitwood, NE NW SE Section 21, McClosky 2,072-2,100 ft., acidized with 4,000 gal., pumped 105 bbl.; No. 28 D. O. Shanafelt, NW SE NE Section 32, total depth 1,853 ft., pumped 96 bbl.; No. 70 J. H. Young, C E½ NW NW Section 28, McClosky 1,953-2,090 ft. in streaks, acidized with 3,000 gal., pumped 188 bbl.; No. 67 J. H. Young, NE SW SW Section 21, McClosky 1,989-2,014 ft., in streaks, acidized with 3,000 gal., pumped 192 bbl.; No. 31 D. A. Shanafelt, NW NE NW Section 21, Tar Springs 1,375 ft., total depth 1,477 ft., a salt-water disposal well. In the same township the following were also completed: Kingwood & Bell's No. 21 Shanafelt A, SW NE NE Section 20, Devonian pay 3,389-3,425 ft., acidized with 2,000 gal., flowed 3,337 ft.; Shell Oil Co., Inc.'s No. 6-C Salem State Bank, Devonian pay 3,369-3,412 ft., acidized with 2,000 gal., flowed 3,582 bbl.; W. C. McBride, Inc.'s No. 17 N. L. Lee, SW NE SE Section 29, Devonian pay 3,408-28¼ ft., acidized with 3,000 gal., flowed 6,224 bbl. through open casing and tubing.

In Township 1n-2e in the Salem field, Texas Co.'s No. 2 M. A. Tate, SW SW NE Section 7, McClosky 1,982-2,006 ft., acidized with 2,000 gal., swabbed 707 bbl. Frontier Oil Co.'s No. 3 Briar Patch, NW NW SW Section 8, abandoned location. Texas Co.'s No. 12 E. Farthing, NE SW NE Section 4, Benoist 1,862 ft., pumped 154 bbl. Texas Co.'s No. 20 O. Johnson, SE NW SW Section 4, abandoned location. Centralia Refining Co.'s No. 1 Hawthorne Strip, SW NE NW Section 8, abandoned location.

Fayette County

In the Louden pool of Fayette County Lewis Clements completed the following wells in Section 16-8n-3e: No. 2 Emily Woods, NW SE SE, total depth 1,644 ft., plugged back 1,614 ft., shot with 40 and 10 qt., flowed 68 bbl. in 6 hours through ¼-in. choke on casing; No. 3 Emily Woods, NE SE SE, total depth 1,625 ft., shot with 10 qt., flowed 58 bbl. in 6 hours; No. 4 Emily Woods, SE NE SE, total depth 1,635 ft., shot with 30 and 20 qt., flowed 101 bbl. in 6 hours; No. 5 Emily Woods, SE SE SE, total depth 1,569 ft., plugged back 1,505 ft., shot with 20 qt., flowed 105 bbl. in 6 hours; No. 6 Emily Woods, SW NE SE, total depth 1,599 ft., shot with 40 and 35 qt., flowed 83 bbl. in 6 hours; No. 8 Emily Woods, NE NE SE, total depth 1,581 ft., shot with 40 and 40 qt., flowed 85 bbl. in 6 hours; No. 8 Emily Woods, NE NE E, total depth 1,601 ft., shot with 40 and 40 qt., flowed 90 bbl. in 6 hours; No. 9 Emily Woods, SW SE SE, total depth 1,552 ft., shot with 60 qt., flowed 104 bbl. in 6 hours.

In Township 8n-3e of the Louden pool Carter Oil Co. completed the following: No. 10 Mabel Miller, NW NW SW Section 28, total depth 1,584 ft., shot with 40 qt. and 10 qt., flowed 354 bbl.; No. 4 F. P. Sinclair, NW SW NE Section 2, total depth 1,605 ft., shot with 40 and 10 qt., swabbed 120 bbl.; No. 4 Robert McCloy, NE NE NE Section 32, total depth 1,558 ft., shot with 80, 40 and 40 qt., flowed 642 bbl.; No. 14 William Ireland, NW NW NW Section 33, total depth 1,524 ft., shot with 60, 30 and 10 qt., flowed 678 bbl.

Also in the Louden field, Jarvis' No. 11 Welker, NE NE SW Section 31-7n-3e, total depth 1,572 ft., shot with 25 qt., pumped 150 bbl. Nash Redwine's No. 4 Logue, SE SE SE Section 13-7n-2e, total depth 1,564 ft., shot with 15 qt., pumped 90 bbl. Texas Co.'s No. 2 B. Kimbell, NE NE NW Section 19-7n-3e, St. Louis lime 1,922 ft., dry and abandoned.

In the St. James field in Fayette County Ohio Oil Co.'s No. 9 J. Swarm, NE SE SE Section 36-6n-2e, total depth 1,619 ft., shot with 10 qt., pumped 204 bbl. Ohio Oil Co.'s No. 3 C. T. Williams, NW NW SE Section 36-6n-2e, total depth 1,614 ft., shot with 9 qt., pumped 206 bbl. Texas Co.'s No. 2 O. Neathery, NE NW NW Section 6-6n-3e, total depth 1,552 ft., pumped 126 bbl. Texas Co.'s No. 2 L. Irey, NE NW NW Section 7-6n-3e, total depth 1,582 ft., pumped 42 bbl.

Other Areas

In Wabash County United States Oil Co.'s No. 1 J. H. Stillwell, SW NW SE Section 7-1n-11w, abandoned location. A. M. Lacey's No. 1 Holsen, NE NE SE Section 27-1n-12w, abandoned location. Parsons' No. 1 Baumfgard, NW NE SE Section 1-1s-13w, abandoned location. Sewell & Ford's No. 1 L. E. Meyers, SW SE SW Section 4-1s-13w, abandoned location. Meyers & Witt's No. 1 Ben Schuh, SW NE SW Section 31-2s-13w, Cypress sand 2,466-76 ft., abandoned after it tested water. F. M. Blair's No. 1 McDonald heirs, NE SE SW Section 9-2s-13w, Cypress sand 2,444-60 ft., shot with 40 qt., pumped 62 bbl. J. R. Mitchell and others' No. 1 C. M. Batwon, NW NW SW Section 16-2s-13w, Cypress sand 2,400-48 ft., dry and abandoned. Magnolia Petroleum Co.'s No. 1 E. Fifer, NE SE NW Section 17-2s-13w, McClosky 2,775-2,812 ft. showed water, dry and abandoned. Southern Illinois Refining Co.'s No. 1 Adam Schanff, NW NE NE Section 31-2s-13w, Cypress sand 2,474-82 ft., tested water, dry and abandoned.

In Coles County Koder's No. 1 Horsley heirs, SE NW NE Section 31-12n-10e, dry and abandoned at 1,280 ft.

In Lawrence County Bowman and others' No. 1 George Lawless, NE NE SW Section 18-4n-10w, Buch-

annan sand 1,029 ft., total depth 1,108 ft., flowed 7,000,000 cu. ft. of gas.

In Richland County Pure Oil Co.'s No. 1 V. Compton, C N½ SE NE Section 36-5n-9e, Fredonia 2,855 ft., pay 2,859-69 ft., flowed 986 bbl.

In Clay County Pure Oil Co.'s No. 1 Brooksy Stanford, C E½ NE SE Section 12-2n-7e, Fredonia 3,029 ft., pumped 87 bbl.

In Wayne County Pure Oil Co.'s No. 1 L. McCracken B, C W½ NW SE Section 33-2n-7e, Fredonia pay 2,993-3,000 ft. and 3,018-25 ft., acidized with 7,000 gal., pumped 34 bbl. Puckett's No. 2 Oakley A, NW NW NE Section 34-2s-8e, McClosky 3,374-96 ft., acidized with 4,000 gal., flowed 220 bbl. Texas Co.'s No. 1 E. Koontz, NW SW SE Section 33-2s-7e, McClosky 3,331-55 ft., pumped 24 bbl. oil and 10 bbl. water. Dunlap's No. 1 M. Harris, NW NW SE Section 34-2s-8e, abandoned location. Southern Petroleum Corp.'s No. 3 Walker B, McClosky pay 3,367-69 ft. and 3,376-84 ft., pumped 150 bbl.

In Edwards County Whisenant and others' No. 1 Dunk, NE SE SE Section 36-2s-10e, McClosky 3,184-3,210 ft., total depth 3,275 ft., dry and abandoned. L. N. & K. Oil Co.'s No. 4 Broster, NW SW SE Section 34-2s-14w, Cypress sand 2,636-51 ft., pumped 125 bbl. oil and 3 bbl. water. Bialock and others' No. 1 G. Broster, SW NW SE Section 34-2s-14w, total depth 2,665 ft., dry and abandoned.

In St. Clair County Longoria's No. 1 Scholler, NW NE NW Section 10-3s-7w, total depth 1,704 ft., abandoned.

In Washington County Magnolia Petroleum Co.'s No. 3 E. McConnell, NE SW NE Section 15-3s-3w, Benoist 1,241-68 ft., shot with 10 qt., pumped 35 bbl. H. Hubbard's No. 1 A. Carson, NW SW NW Section 25-3s-3w, Glen Dean 921 ft., dry and abandoned.

In White County Morrow's No. 3 Cox, NW NE NE Section 6-4s-8e, Aux Vases 3,232 ft., shot with 20 qt., pumped 6 bbl. oil and 3 bbl. water. Penn-Illinois Oil Co.'s No. 4 Porter, C E½ SE SE Section 12-6s-8e, McClosky 3,044-64 ft. and 3,076-88 ft., acidized with 4,000 gal., flowed 830 bbl. oil cutting 8 per cent water. Bates & Lichlyter's No. 1 Aud, NE NE SW Section 27-6s-9e, an extension to the Storms field, total depth 2,764 ft., Cypress sand at 2,713 ft. tested water, perforated in Waltersburg at 2,340 ft., flowed 3,000,000 cu. ft. of gas per day. Skelly's No. 2 Storms, NW SW SW Section 14-6s-9e, Waltersburg sand 2,222-58 ft., flowed 111 bbl. in 16 hours. Eason & Angle's No. 9 Storms, SE SW SE Section 14-6s-9e, Waltersburg 2,228-67 ft., flowed 110 bbl. W. R. Hayes' No. 1 Orman, NW NE NW Section 18-6s-10e, McClosky 3,054-60 ft., swabbed 42 bbl. oil and 6 bbl. water from Aux Vases sand, abandoned.

In Saline County Simon Henry and others' No. 1 Leters, SW SW SE Section 1-9s-7e, McClosky 2,905-19 ft., dry and abandoned.

In Gallatin County John Coates' No. 1 Logan, SW NW SW Section 16-9s-9e, Waltersburg sand 1,787-1,815 ft., shot with 70 qt., pumped 14 bbl. Fields and others' No. 6 Green, NE SE SE Section 17-9s-9e, Waltersburg 1,775-1,805 ft., pumped 31 bbl. J. O. Ingram and others' No. 1 Beverly-Turner, NE NE NE Section 19-9s-8e, abandoned location. Egyptian Tie & Timber Co.'s No. 2 fee, C W½ NE SW Section 15-8s-10e, total depth 241 ft., dry and abandoned.

Wildcat Activity

Wildcat first reports in the state were as follows: in Clinton County Santa Fe Petroleum Co.'s No. 1 George Vandelov, NE NW NE Section 8-1n-3w, moving in rotary for Devonian test.

In Crawford County H. R. Snavely's No. 1 Steve Freeman, approximately 1,400 ft. north line and 2,340 ft. west line, NW¼ Section 4-8n-11w, rigging up. Seger and others' No. 1 Steward, NE NE NE Section 27-6n-11w, moving in machine for Devonian test.

In Jackson County W. R. Davis' No. 1 Michels, NE NW NW Section 18-9s-3w, spudded and shut down.

(Continued on Page 235)

INDIANA

EVANSVILLE, Ind., Jan. 22.—One oil well was completed and one dry hole abandoned in Indiana last week in a week featured by extremely cold weather which made field work extremely difficult and in some cases caused shutdown of tests. Of the 56 active wells in the southwestern part of the state, 22 were shut down for orders, 4 were shut down because of the weather, 6 were waiting on cement, there were 11 locations and rigs and 13 active drilling wells.

J. E. Crosbie, Inc., got the lone oil well in Posey County when it completed its No. 3 Keck, NW SW NE Section 34-3s-14w, for 95 bbl. on the pump after perforating casing at 2,133-48 ft.

In Vanderburgh County Burr Lambert and others' No. 1 Force, SW NW SW Section 7-7s-11w, Tar Springs 1,935-50 ft. carried water, abandoned at 1,967 ft.

WESTERN KENTUCKY

OWENSBORO, Ky., Jan. 22.—Operations in western Kentucky during the past week follow:

Butler County, Silver City district: Cumberland Petroleum Co.'s No. 4 Lee Hawkins, 10 bbl., Jones sand, total depth 530 ft. Huntsville district: Commodore Oil Co.'s No. 1 A. F. Mefford, dry hole, total depth 393 ft.

Daviess County, Birk City district: Jess Ashby's No. 3 Laura Hagan, abandoned location. Utica district: Globe Oil & Gas Co.'s No. 11 J. M. Clark, 30 bbl., Jett sand, total depth 1,275 ft. W. Sargent and others' No. 1 C. R. Cox, location. J. C. Ellis and others' No. 1 J. F. Leet, Barlow saturation 1,383-1,422 ft., drilling deeper for McClosky.

McLean County, Island district: South Penn Oil Co.'s No. 10 Alma Nall, dry hole through McClosky, total depth 2,130 ft.

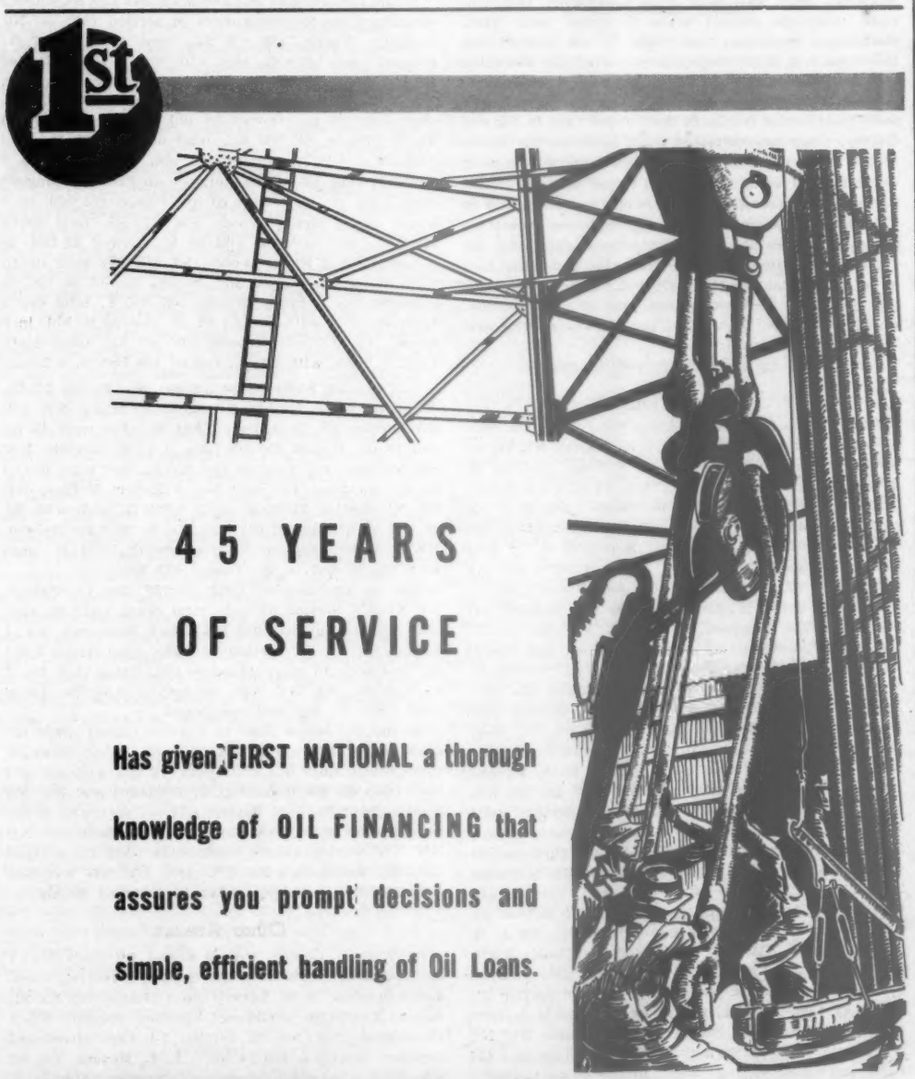
Ohio County, Oaks district: R. Miller and others' No. 3 Mrs. A. J. Lane, moving in.

EASTERN KENTUCKY

ASHLAND, Ky., Jan. 22.—Winter has again tightened its grip on eastern Kentucky with a resultant drop in drilling operations. It is doubtful if any increase in operations will be noted until warmer weather arrives.

In Floyd County Kentucky West Virginia Gas Co. is down 2,040 ft. in Big lime in No. 5259 John W. Taylor on Toler Creek. It is also drilling at the 1,320-ft. level in No. 5261 J. P. Sturgill on Toler Creek with operations continuing in Red Rock. In Martin County, the company is down 2,880 ft. in No. 581 Wilson Short, on Rockcastle and is repairing rig. In Knott County it is drilling at 60 ft. in slate in No. 582 B. F. King, on Joe King Branch.

In Lawrence County Big Blaine Oil & Gas Co. is drilling around tools at 800 ft. in No. 14 W. M. Savage, in the Busseyville-Fallsburg district.



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Michigan Field Report

By O. C. PRESSPRICH

Twenty Producers Completed; Gas Wildcats Add to Reserves

SAGINAW, Mich., Jan. 22.—While Michigan drilling operations last week added 20 producing wells with initial output of from 5 to 1,200 bbl. a day, Sun Oil Co. ran into a heavy flow of gas in a wildcat in Hamilton Township, Clare County, which gives indication of a sizeable addition to the state's gas resources.

Lacking gaging facilities, drillers estimated the flow at from 5,000,000 to 8,000,000 cu. ft. per day in No. 1 Switzer, Section 26. Pressure blew water from the 8-in. casing at 1,262 ft. Sun Oil is making a Dundee test and it was reported planned to cement off the gas and continue drilling for oil. The discovery is 14 miles west and south of previously discovered gas reserves in Lincoln Township, Clare County.

Four counties, Allegan, Isabella, Kent and Ottawa, contributed new crude production which had initial potential of better than 6,500 bbl. a day. Nine completions, several in wildcat territory, were abandoned as dry.

DAILY AVERAGE MICHIGAN CRUDE-OIL RUNS DECEMBER 1939

Pool—	Wells	Runs
Porter-Yost	366	4,700
Greendale-Chippewa	196	1,272
Geneva-Midland	2	14
Sherman-Isabella	58	1,060
Wise-Isabella	19	1,238
Vernon-Leaton-Denver	78	807
Freeman-Redding	126	15,316
Grant-Clare	3	14
Beaverton	20	172
Edenville	30	472
Bentley-Gladwin	35	421
Buckeye-Wicklund-Oard	349	4,077
Ogemaw	230	1,645
Secord-Gladwin	2	0
Adams-Arenac	14	123
Clayton-Arenac	50	1,406
Tuscola	5	18
Saginaw-Bay area	57	110
Birch Run	25	39
Dundee-Monroe	5	350
Montcalm County	42	378
Allegan—old pools	303	2,979
Allegan—new Salem	79	3,996
Zeeland (Ottawa County)	2	22
Muskegon	72	60
Walker-Wyoming-Tallmadge	271	16,851
Bloomingdale-Columbia	268	5,717
Bangor (Van Buren County)	10	125
Totals	2,717	63,382

Ottawa's Tallmadge Township, current hot spot of new southwestern Michigan production, had five completions, average initial being close to 500 bbl. a day. The biggest well, Twin Drilling Co.'s No. 2-B McKay, in Section 26, did 50 bbl. an hour after acidization from 1,865 ft. Century Oil & Gas Co.'s No. 2 Riordan in Section 25, was good for 750 bbl., and W. R. Borough's No. 4 Brady, in Section 25, rated 400 bbl.

Kent County had most producers, nine wells totaling 1,180 bbl. initially, while one was dry.

One of four new producers in Allegan County, Red-Man Oil Co.'s No. 1 Costen, in Section 34 of Overisel Township, was good for better than 1,000 bbl., while Mills Brothers' No. 1 Schaap, Section 34, also was reported to be an extra good producer.

Isabella County, apparently developing into the new center of drilling activity in Central Michigan, recorded one completion, McClanahan Oil Co.'s No. 1 Russell, Section 17, Wise Township, for 750 bbl. It is on the far western side, indicating new territory. Nearly a dozen tests are starting, or well advanced.

Transwestern Oil Co.'s No. 1 O'Connor, wildcat in Section 1 of Carlton Township, Barry County, was abandoned at 2,245 ft. Another limestone failure was Kent Drilling Co.'s No. 1 Easton, in Rives Township of Jackson County, while the Tamblyn-MacGillivray's No. 1 Russell test in Grand Blanc Township, Genesee County, was abandoned at 2,234 ft.

Other tests of interest classified as dry were Sun Oil's No. 1 Davis, in Midland's Edenville Township, abandoned at 4,000 ft., and C. E. Bliss' No. 1 Hagen, in Fruitport Township, Muskegon County, dry at 2,100 ft.

Only 17 drilling permits were issued during the week, five being for Tallmadge locations, four for Kent County, four for Allegan, two for Isabella's Wise pool and one for Van Buren County.

Following is a summary of completions in Michigan last week:

Allegan County

Cheshire Township (1n-14w)—Huffman Drilling Co.'s No. 1 Hillman, SE SE NE Section 2, was dry and abandoned at 1,486 ft.

Overisel Township (4n-14w)—Lentz & Miller, Inc.'s No. 3-B John G. Berens, SE SW SE Section 27, was good for 200 bbl. after treatment, at 1,560 ft. Charles W. Cook's No. 2 Albert Kopper, SE NE NW Section 34, completed at 1,451 ft., produced 135 bbl. after acid. Red-Man Oil Co.'s No. 1 Hattie Costen, C E½ SE NW Section 34, rated 1,080 bbl. after being acidized, at 1,436 ft. Miller Brothers completed No. 1 J. O. Schaap, NW NE SW, Section 34, at 1,433½ ft. The well was acid-treated and was reported to be a good producer.

Salem Township (4n-13w)—Socony-Vacuum Oil Co.'s No. 1 D. H. Kluinsteker, NE NW NW Section 10, completed at 1,623 ft., was good for 324 bbl., initially, after being acidized.

Barry County

Carlton Township (4n-8w)—Transwestern Oil Co.'s No. 1 D. H. O'Connor, NE SE NE Section 1, was dry at 2,245 ft.

Genesee County

Grand Blanc Township (6n-7e)—R. B. Tamblyn and M. W. MacGillivray's No. 1 J. J. Minter, NE SW NE Section 14, was completed dry at 2,234 ft.

Kent County

Walker Township (6n-12w)—Certain-Teed Products Corp.'s No. 9 fee, SE NE NE Section 4, was rated at 350 bbl. after acid, total depth 1,772 ft.

Walker Township (7n-12w)—H. C. Williams' No. 4 Jane Thurkettle, NE NE SW Section 29, produced 80 bbl. naturally, at 1,863 ft. C. A. Welsh, trustee's No. 1 Whalen, SE NE SW Section 32, completed at 1,861 ft., produced 260 bbl., after treatment, while production, after acidizing, was 75 bbl. from Wolverine Natural Gas Corp.'s No. 3 George Burgess, SE NE NW Section 32, completed at 1,909 ft. C. A. Welsh, trustee's No. 3 Cudahy, NW SE NW Section 33, rated 292 bbl. after acid, at total depth of 1,841½ ft. J. E. Flanigan's No. 1 McShane, NE NW SW Section 33, at 1,860 ft., was good for 100 bbl. after being acidized. Gordon Oil Co., further treating No. 3 U. S. Gypsum, SW SE NW Section 34, originally rated as dry, was getting 15 bbl. at 1,887 ft.

Wyoming Township (6n-12w)—A. S. Cochran and others' No. 1 H. A. Chapin, C S½ NE SW Section 8, was a small producer averaging 5 bbl. from 1,805 ft., after being tabbed as dry. Marks & Schearer's No. 2 Lewis Peck, SW SE NW Section 13, was completed dry at 1,923 ft. William R. Alexander, trustee's No. 1 G. M. Plat, NW SE SE Section 14, completed at 1,910 ft., produced 100 bbl. after being acidized.

Isabella County

Wise Township (16n-3w)—McClanahan Oil Co. and others' No. 1 Russell, SE SW SE Section 17, completed and acid-treated at 3,701½ ft., had initial of 750 bbl.

Jackson County

Rives Township (1s-1w)—Kent Drilling Co.'s No. 1 V. H. Easton, SE NW SE Section 26, was completed dry at 2,177 ft.

Midland County

Edenville Township (16n-1w)—Sun Oil Co. abandoned No. 1 Frank H. Davis, C S½ SE NW Section 13, as dry at 4,000 ft.

(Continued on Page 234)

Jackson County Test Appears to Be Disappointing So Far

By STAFF CORRESPONDENT

PITTSBURGH, Pa., Jan. 22.—In Jackson County, West Virginia, the test of Joe Rubin and others on the Henry Morrison farm in Grant district, appears disappointing. The Oriskany sand was topped at 4,782 ft. and at 4,786-87 ft. there was a volume o 150,000 cu. ft. of gas which at 4,809½ ft. or 27½ ft. in the sand had blown or frozen down to 54,000 cu. ft. a day. This test to the Corniferous lime appeared about 32 ft. higher than the Oriskany gas well on the D. P. Curry farm in Ravenswood district and maintained it through that member which was 103 ft. thick. The test is about 2 miles west of Lockhart. The volume is considerably lower than that of the D. P. Curry test but after shot it may increase in the same ratio as the Curry test did in which case it will make a commercial well.

In Wood County, West Virginia, the important test of United Carbon Co. on the J. K. Grimm and others farm in Steel district topped the Corniferous lime at 4,625 ft. and is shut down to run casing at 4646 ft. This test is on the west flank of the Parkersburg syncline and on the Belleville Quadrangle It is 1½ miles north 64° west of Saulsbury, just west of the corner of Tygart, Slate, and Steel districts. The top of the Corniferous lime is about 14 ft. higher than the test on the C. D. White farm in Steel district which proved dry through the Oriskany sand.

During the week 28 operations were reported from the lower Eastern fields of which 4 were dry, 19 gas wells, and 5 producers with a daily initial of 25 bbl.

On Chestnut Ridge, in Fayette County, New Penn Development Co., William E. Snee and others, are shut down to reverse the line on the Piedmont Coal Co. in North Union Township. While down, the gas from the Onondaga at a depth of 6,800 ft., has been turned in the line and is gaging about 1,800,000 cu. ft. In Maryland these operators are drilling at 5,375 ft. on the Humberson farm on the Accident dome in Garrett County. On Laurel Ridge these operators and E. G. Mueller are drilling at 3,970 ft. on the Gregg L. Neel farm in Stewart Township, Fayette County.

In Poca district, Kanawha County, United Fuel Gas Co. completed No. 4861 C. C. Fisher, at 5,052 ft., with the Oriskany sand at 5,032-52 ft., and a gage of 4,132,000 cu. ft. after shot.

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Among the Drilling

HELMERICH & PAYNE, INC., Tulsa, has taken the drilling contract on a new 4,500-ft. wildcat test recently staked in the southeastern part of Montague County, North Texas. It will be drilled for Walter Jones and associates as their No. 1 Johnson, the location being in Section 5, E.T. Survey, 4 miles southeast of the town of Montague. Derrick has been erected and rotary rig is being moved to the location.

W. H. McGEE, Fort Worth, Tex., has contracted to drill a northeast outpost to the Rowe & Baker pool in northwestern Henderson County, eastern Texas. It will be drilled for W. R. Manning, Houston, as his No. 1 Rowe & Baker, located 1,700 ft. northeast of nearest production and in the J. T. Childers Survey. The contractor will not move material to the site until the test he is drilling on the Rutland Savings Bank lands, Baker Survey, wildcat in the southeastern part of Kaufman County, has been completed.

OIL WELL DRILLING CO., Dallas, Tex., is drilling below 4,000 ft. at its wildcat in the southern part of Gaines County, West Texas. It is located in Section 10, Block 35-A, P.S.L. Survey, and contracted to the regular pay zone of the northern Permian basin fields.

T. A. CARLTON has moved a rotary to Harris County, Texas, for his No. 1 J. J. Sweeney, 3 miles northwest of the Fairbanks field in the G. W. Eaton Survey.

THOMPSON DRILLING CO. is rigging up in Harris County, Texas, for the company's No. 1 Fuchs, 1½ miles northeast of the Fairbanks field in the James Doswell Survey.

DELTA DRILLING CO., Tyler, Tex., has announced a 17-well drilling campaign for its 560 acres acquired in a farmout deal last week on the north end of the Slaughter pool in Hockley County, West Texas. The company acquired from George Etz, Lubbock, Labors 3, 13 and 21 in League 41, Maverick County School Lands, about a mile north of production in the field. First test to be drilled by Delta on the acreage is No. 1-A R. L. Slaughter, Jr., 440 ft. from the south and west lines of Labor 21, League 41, 1 mile north and slightly east of Richardson's No. 1 Sun-Denton. Location has also been made for a test on another tract of acreage included in the farmout deal, the additional acreage being Labors 35 and 56, League 40, Maverick County School Lands, just south of the main part of the acreage acquired. Second location is Delta's No. 1-B Slaughter, 440 ft. from the south and west lines of Labor 56.

LOFFLAND BROTHERS received contract from Cities Service Oil Co. for a wildcat located in the P. V. Cook lease, about 5 miles northeast of the town of Katy in Waller County, Texas.

HOUSH & THOMPSON are drilling below 3,800 ft. on West Conroe Oil Co.'s No. 1 R. L. Calfee, a wildcat located west of Conroe in Montgomery County, Texas. In Allen Parish, coastal Louisiana, Housh & Thompson's No. 1 Industrial Lumber Co. is drilling below 10,022 ft.

HARRY L. EDWARDS Drilling Co. has apparently extended and opened a new producing horizon in the Rosenberg field, Fort Bend County, Texas, as Fred Browning's No. 1 Sacha, ⅛ mile southwest of the discovery well, is flowing gas and wash water while cleaning out through perforated casing at 8,181-85 ft.

PATRICK & TYRELL have logged encouraging showings in Ralph Sturm and Morris Womack's No. 2 Foster estate, a wildcat located in the Willis area in Montgomery County, Texas. The well is coring below 6,974 ft., after logging gas and distillate showings in a sand and sandy shale section at 6,758-6,838 ft.

ROWAN DRILLING CO. is drilling below 1,500 ft. on the company's No. 1 Tortoris, a wildcat located south of Cheek in Jefferson County, Texas. In the Venice field, Plaquemines Parish, Louisiana, a production test was made at Tide Water Associated Oil Co.'s No. 11 Manhattan Land & Fruit Co.

SUMMIT DRILLING CORP. of Tulsa informed the Oklahoma Corporation Commission of intention to drill the No. 1 Hester E. Cleer, in C W½ SE SW Section 6-15n-5e, northwest of Davenport field of Lincoln County. Operations are to start January 26. Summit is drilling the well for a community interest which includes, besides Summit, Carter Oil Co., Sinclair Prairie Oil Co., Deep Rock Oil Corp., Mid-Continent Petroleum Corp., Brookhaven Oil Co. and Beaty & Co. Summit Drilling Corp.'s No. 1 Thompson, SE SE SW Section 18-10-11, near Weleetka, in Okfuskee

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The Oil and Gas Journal
Tulsa, Oklahoma

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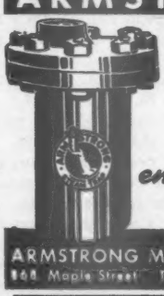

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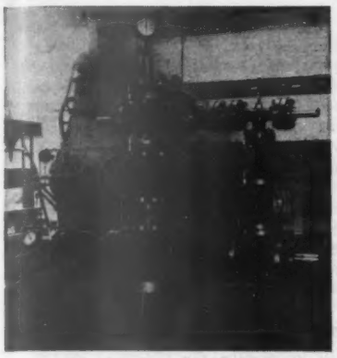

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THE OIL AND GAS JOURNAL

Tulsa, Okla.

County, Okla., was ... gas estimated at 1,000,000 cu. ft. a day, and tested 12 to 15 bbl. of oil an hour, about the same as the discovery well drilled in the area by Paul McIntyre. Operators were trying to run tubing. Total depth is 2,310 ft., 7-in. casing is set at 2,297 ft.

JOHNSON-KENMITZ DRILLING Co., Oklahoma City and McGraw Oil Co., Tulsa, at No. 1 Neff-Godfrey, wildcat test in SW SE SE Section 14-6-6e, Marshall County, Oklahoma, shut down, waiting for orders, after salt water showed in sand from 4,408-55 ft., total depth, although good oil shows were found higher. Plans are under way to deepen or test upper shows. Operators set 15½-in. casing at 587 ft., had Pennsylvania at 650 ft., Mississippian Caney at 1,485 ft., Sycamore at 1,795 ft., a show of oil at 1,831-38 ft. in Sycamore; Woodford at 1,945 ft.; no Hunton lime; Sylvan shale at 2,315 ft.; show of oil in base of Sylvan; Viola lime at 2,626 ft; a small show of oil in the Viola lime; Simpson Dense at 3,207 ft.; Wilcox sand at 3,556 ft.; cored 3,559-72 ft., recovering 10-in. sand bleeding with black oil and 2 ft. of green shale; sand at 4,416 ft.; cored 4,426-40 ft., recovering 11½ ft. of medium-grained pure sand, good porosity, slight saturation; cored 4,426-55 ft., recovering more sand; ran electrical log, which indicated sand with show of oil from 3,715-36 ft., 3,803-38 ft., 3,856-79 ft., 4,390-4,408 ft., 4,408-55 ft., total depth. There the test lost the sand, its last sand having had an indication of salt water. On drill-stem test with packer set at 4,408 ft., recovered 23 stands of salt water, mud, some oil and show of gas. This well is located in what is known as the Red River dam area of southern Oklahoma.

OLSON DRILLING CO., Tulsa, with Bryce McCandless and others at No. 1 Crockett, a wildcat, in Section 5, Block 110, T.C. Survey, 1½ miles southwest of the Apco pool in northern Pecos County, West Texas field, has definitely opened a new Ordovician oil area. Drilled to 4,518 ft., it ran the 2½-in. tubing to 4,514 ft., set a packer at 4,484 ft., treated with 1,000 gal. of acid. It cleaned the hole, flowing 285 bbl. of 40.9-gravity oil in 2 hours and 35 minutes; choked, it did 106 bbl. an hour for 5 hours and was then shut in. Olson NE SE NW Section 12-5n-9w, in the Cement field of Caddo County, Oklahoma, was preparing to drill plug with the hole bottomed at 3,835 ft. Olson Drilling Co.'s No. 1 Scritchfield, in NW NE SW Section 4-12-3w, in the South Britton area, Oklahoma County, Oklahoma, total depth 6,741 ft., casing at 6,721 ft., was bailing mud to drill plug.

Drilling crew of the Hudson & Hess Drilling Co. at work on the General American Oil Co.'s No. 3 Koontz in the Mill Shoals field. Left to right: C. E. Spears, J. F. Renfro, Ed Kabbus, and C. G. Johnston, driller. Production in the Mill Shoals field is obtained from the McClosky lime and the Aux Vases sand at approximately 3,400 ft.; the field was recently extended into the Mill Shoals townsite where a small boom is now in progress

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Oklahoma Operations

By
DAL DALRYMPLE

Open New Area in Okfuskee; Second Outpost Showing Oil

Field operations in Oklahoma are hampered by severe weather, but the past week was not without its highlights. A new producing area was proven in Okfuskee County, the second producer was completed in the recently discovered Byers pool of McClain County, and big producers were completed in the Cement and St. Louis fields.

Paul McIntyre, Summitt Drilling Co. and others' No. 1 Thompson, SE SW NW Section 18-10-11, west of Weleetka, Okfuskee County, was shut in for tankage after cleaning out with an estimated 1,000,000 cu. ft. of gas and flowing about 15 bbl. of oil an hour, naturally. Booch sand was found at 2,298 ft. and the hole was bottomed at 2,305 ft.

McIntyre, Cummings, Sherman and others' No. 1 McMahon, NW NW SE Section 36-11-9, north of the Okemah pool, Okfuskee County, was reported to have topped Wilcox sand at 3,788 ft., total depth 3,790 ft., oil rose 1,000 ft. in the hole in 2 hours and it was shut down for tankage. It may be deepened a few feet before completion. The outpost was drilled on geology by Russell S. Tarr.

A big shale gas well was completed in Wagoner County at Gartner & Griffith's No. 2 Ritterhouse, NE SW NW Section 16-17-17. Pay was found at 765 ft., penetrated a few inches, and on completion test the well gaged 2,000,000 cu. ft. of gas daily, with rock pressure 325 lb. It was said to be the largest gas well to be completed in that area.

Maryatt & Hackathorn's No. 2 Edgar, SW NW Section 36-24-16, in the Chelsea district, Rogers County, was reported drilling below 710 ft. in Mississippi lime.

Some of the recently adopted names of new pools were changed at a meeting of the Oklahoma Nomenclature Committee last week. The new McClain County area, originally named the Chism pool, was changed to the Byars pool. Name of the North Bebee area was changed to South Konawa, located in S½ Section 3-5-5, S½ Section 4-5-5, E½ Section 8-5-5, all of Section 9-5-5, W½ Section 10-5-5, all of Section 16-5-5 except the W½ SW SW, in Seminole and Pottawatomie counties. The erstwhile Dunn area of Creek County, originally named the West Nuyaka pool by the committee, was renamed the East Tuskegee pool. The changes were made to better comply with geological locations.

Among the Wildcats

Harper-Turner and others' No. Shaeffer, NW NW NW Section 6-16-2e, wildcat in northwestern Lincoln County, topped Wilcox sand at 4,996 ft., had Marshall zone at 5,045 ft., second Wilcox sand 5,135-46 ft., total depth, and was dry and abandoned.

Wood Oil Co. and others' No. 1 Crow, SE SE SE Section 31-8-6, Seminole County wildcat, found Wilcox sand at 4,605 ft., was bottomed at 4,623 ft., the jeep indicated water in the sand, and it was abandoned.

Harper & Knapenberger's No. 1 Thompson, SE SE SE Section 5-1s-21w, wildcat in Jackson County, was temporarily abandoned at 3,949 ft., total depth, but the hole was left in condition so operations could be resumed.

New wildcat operations included these: Starr Oil Co.'s No. 1 Bowlby, SW SW NW Section 29-5-4, Pontotoc County, west of the Bebee pool and southeast of the Byers pool, location, on an Amerada-Stanolind farmout; Walker & Johnson's No. 1 Rogers, NE NE NE Section 24-7-9, southeast of Holdenville, Hughes County, shut down at 615 ft.; Stanolind Oil & Gas Co.'s No. 1 Aldridge, NW NE SE Section 32-9-8, northeast of Wewoka, Seminole County, cellar and pits; Champlin Refining Co.'s No. 2 Thompson, NE SW NW Section 7-13-8, southwest of the Micawber pool, Okfuskee County, building rig; Welch's No. 1 Walker, NW SW SW Section 6-13-10, northwest of the Beidleman pool, Okfuskee County, cellar and pits; Helmerich & Payne, Inc.'s No. 1 McMahon, SW SW SE Section 31-17-1e, south of the Coyle area, east of the Langston area, Logan County, building rig.

Pottawatomie County

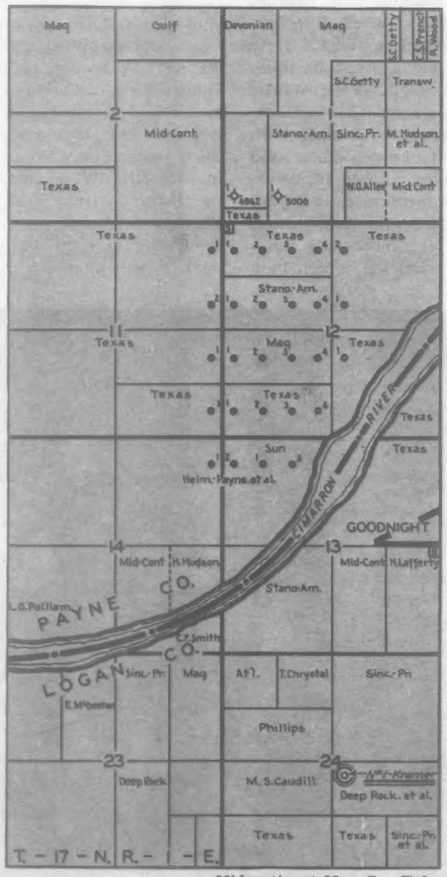
Elko Oil Co.'s No. 4 Brister, SW NW NE Section 28-7-4, St. Louis district, Pottawatomie County, had Wilcox sand at 4,280 ft., total depth 4,300 ft., set 7-in. casing at 4,265 ft., pumped 1,056 bbl. of oil in 8 hours and made daily potential of 2,960 bbl.

Other St. Louis completions: Sinclair Prairie Oil Co.'s No. 8 Deatheridge, NE SW NW Section 28-7-4, Wilcox sand 4,356-64 ft., total depth, swabbing potential of 293 bbl. of oil with 200 bbl. of water. Central Petroleum Co.'s No. 2 Mijah, NW NE SW Section 28-7-4, water in Wilcox sand at 4,392-4,414 ft., total depth, abandoned. Smith's No. 2 Hines, NE SE NE Section 21-7-4, an old well, deepened from 4,195 ft. to 4,317 ft., plugged back to 4,078 ft., acidized, pumped 17 bbl. of oil and 250 bbl. of water daily. Hilton Phillips' No. 4 Bettis, SE SW SW Section 21-7-4, old well, had junked hole after plugging back from 3,734 ft. to 2,927 ft., abandoned.

Tilley Oil Co.'s No. 1 Mann, NW SW SE Section 19-6-5, Gray area, was dry and abandoned in Mayes sand at 3,021-35 ft., total depth.

Atlantic Refining Co.'s No. 2 Ne-Thah-Pea-Sea, NW SE NE Section 24-11-4, North Shawnee area, topped Wilcox sand at 4,868 ft., had pay at 4,860-90 ft., total depth, flowed 224 bbl. in 10 hours, pinched. Gravity of the oil was 34.5 degrees.

Gulf Oil Corp.'s No. 2 Watson, NE NW NE Section 35-6-4, was a rig. Hilton Phillips' No. 4-A Bettis, SE SW SW Section 21-7-4, set 12-in. pipe at 70 ft., was waiting on cement; Indian Territory Illuminating Oil Co.'s No. 6 Weems, SW NW SW Section 21-7-5, was a location; Ray Dunnett's No. 2 McDaniels, SW SW SE Section 31-11-4, was a machine.



Midcontinent Map Co., Tulsa

Work has started at Henry N. Greis, trustee, Deep Rock Oil Corp. and Helmerich & Payne, Inc.'s No. 1 Kramer, NW NW SE Section 24-17-1e, wildcat in Logan County, south of the Coyle pool in Payne County. It is to be a Wilcox-sand test. Deal for the test was made by J. J. Wright, Tulsa geologist. It is a Texas Co. farmout

Estimated Daily Production

Estimated daily production for Oklahoma for the week ended January 19, and for the preceding week was as follows:

	Barrels	
	Jan. 19	Jan. 12
Allen	6,125	6,100
Billings	6,350	6,375
Burbank	7,150	7,125
South Burbank	8,450	8,450
Balance Osage	17,500	17,500
Blackwell district	3,750	3,750
Bristow-Slick	6,325	6,325
Chandler	1,425	1,425
Crescent	2,375	2,350
Cromwell	2,875	2,875
Cushing-Shamrock	9,625	9,650
Duncan	3,750	3,750
Edmond	4,625	4,600
Fish	3,850	3,825
Fitts	20,550	20,400
Jesse	2,250	2,250
Graham-Fox	2,200	2,200
Gray	750	750
Healdton	9,075	9,025
Hewitt	3,925	3,900
Keokuk	3,050	3,025
Konawa	1,225	1,225
Lucien	8,475	8,450
Moore	2,250	2,300
Oklahoma City	103,000	102,105
Olympic	2,550	2,575
Ramsey	5,250	5,275
Sasakwa	1,775	1,775
Sholem-Alechem	2,975	2,950
Seminole district:		
Bowlegs	7,125	7,125
Carr City	2,400	2,425
Dora	2,550	2,575
Earlsboro	4,425	4,375
South Earlsboro	550	550
East Earlsboro	2,250	2,225
Little River	6,725	6,700
East Little River	725	725
Maud	650	650
Mission	1,275	1,275
Seminole	7,300	7,275
East Seminole	1,150	1,125
Searight	2,275	2,275
Total Seminole	39,400	39,300
St. Louis-Pearson	35,100	35,250
Tatums	2,150	2,175
Tonkawa-Garber-Thomas	4,075	4,075
Wewoka	1,625	1,625
Yale-Jennings	3,575	3,525
Other pools	93,025	84,920
Total Oklahoma	432,425	423,175

Seminole County

Helmerich & Payne, Inc.'s No. 1 Fish, NE SE NE Section 30-7-8, Fish pool, Seminole County, topped dolomite at 4,123 ft., set 7-in. pipe at 4,127 ft., was bottomed at 4,138 ft. and pumped 30 bbl. of oil and 146 bbl. of water in 24 hours.

Ligon's No. 2 Jones, NW SW SE Section 24-8-7, Rosanna area, set 7-in. pipe on top of Wapanucka formation at 3,322 ft., total depth 3,358 ft., plugged back to 3,335 ft., and flowed 40 bbl. of oil daily.

Kemnits's No. 1 Caesar, NE NW NW Section 20-6-6, had a slight showing of oil in sand topped at 2,825 ft., but was dry and abandoned at 3,040 ft., total depth.

Atlantic Refining Co.'s No. 3 Dameron, SE NE NW Section 22-6-6, an old well, was deepened from 3,528 ft. to Wilcox sand at 3,767-3,800 ft., total depth, had a hole full of water, plugged back to 3,458 ft., perforated and

acidized, and pumped 45 bbl. of oil and 1,200 bbl. of water in 24 hours.

Magnolia Petroleum Co.'s No. 2 Dixon-Ligon, NE SE SW Section 24-8-7, had Wapanucka at 3,335 ft., Cromwell sand 3,338 ft., total depth 3,345 ft., and flowed 360 bbl. of 36-gravity oil in 24 hours.

Hall's No. 1-A Taylor, SW SW NE Section 35-10-7, had Gilcrease sand at 3,625 ft. and was dry and abandoned at 3,586 ft., total depth.

New work in Seminole County: Magnolia Petroleum Co.'s No. 5 Reed, NW SW NE Section 26-5-7, cellar and pits; Villine's No. 1 Church, SW NW SE Section 36-7-5, building rig; Rudco Oil Co.'s No. 8 Tewee, NE SW NE Section 14-7-6, set 10-in. pipe at 78 ft., waiting on cement; Magnolia Petroleum Co.'s No. 3 Dixon-Ligon, SW SE SW Section 24-8-7, cellar and pits.

Hughes County

Melton's No. 1 Jackson, C S½ NW NE Section 5-8-10, North Yeager area, Hughes County, topped Cromwell sand at 3,485 ft., and was dry and abandoned at 3,543 ft., total depth. Same operator's No. 1 well, C S½ NE NE Section 5-8-10, was abandoned after setting 10-in. pipe at 138 ft.

Pontotoc County

Continental Oil Co.'s No. 6 House, SE NW SE Section 12-1n-7, Jesse area, Pontotoc County, topped Bromide at 4,103 ft., McLish, 4,374 ft., set 7-in. casing at 4,566 ft., was bottomed at 4,659 ft., flowed 458 bbl. of oil in 6 hours and made daily potential of 1,734 bbl.

Senora Oil Co.'s No. 2 Porter, SE NE NE Section 35-5-4, Bebee area, found Viola lime at 2,335 ft., was bottomed at 2,559 ft., was shot, pumped 313 bbl. of 37-gravity oil the first 24 hours and 360 bbl. the next 24 hours.

Superior Oil Co.'s No. 3 Summers, SW NW NW Section 36-5-4, had Viola lime at 2,357 ft., total depth 2,486 ft., was acidized and pumped 230 bbl. of oil the first 24 hours and 321 bbl. the next 24 hours. Same company's No. 5 Summers, NE SW SW Section 25-5-4, was an abandoned location.

W. A. Delaney's No. 1 Phoenix, NW NW SW Section 36-5-4, was a location. Minton's No. 1 Chandler, SW SE NW Section 35-5-7, was drilling below 200 ft. Sinclair Prairie Oil Co.'s No. 15 Ralls, SE NE SW Section 28-5-8, had dug cellar and pits.

McClain County

Patsy Oil Co.'s No. 1 Coldwell, NE NW NE Section 16-5-3e, Byers pool, McClain County, topped Viola lime at 3,550 ft., was bottomed at 3,705 ft., set 7-in. casing at 3,552 ft. It flowed 423 bbl. of oil in 12 hours through 1-in. choke, and flowed 195 bbl. in 3 hours through 1-in. choke. It is the west offset to the discovery well.

Lincoln County

Wilcox Oil & Gas Co.'s No. 7 School Land, SW SW SE Section 16-14-6, Sac and Fox pool, Lincoln County, was shot and flowed 104 bbl. of oil daily from Prue sand topped at 3,002 ft., total depth 3,093 ft.

Same company's No. 4 Furry, NW NW NE Section 21-14-6, found Prue sand at 3,014 ft., was bottomed at 3,019 ft., shot, and flowed 54 bbl. of 46-gravity oil in 24 hours.

Southern's No. 1 Morrow, SE NW NW Section 5-15-6, Skellyville area, had sand at 3,779-80 ft., total depth, and produced 8,666,000 cu. ft. of gas daily, with 900 lb. rock pressure.

Yorkan Production Co.'s No. 2 Stewart, NW SE NW Section 15-13-6, was rigging up rotary. Wilcox Oil & Gas Co.s No. 1 State C, SE SE NW Section 16-14-6, was a location.

Creek County

Sand Springs Home's No. 2 Atkins, NW NW NE Section 5-18-7, an old Creek County well, pumped 10 bbl. of oil daily after plugging back from 2,639 ft. to Skinner sand at 2,260-68 ft.

New work in Creek County: Springer's No. 1 Havercamp, SW SE NE Section 29-14-10, spudded; Kirchner's No. 1 Baker, NW NE SE Section 20-17-9, rigging up machine; Hollowfield's No. 1 Brown, NW NW SE Section 18-18-10, machine.

In Okfuskee County, Doak's No. 1 Douglass, SW NE NE Section 16-10-11, was a location. Winona Oil Co.'s No. 2 Herr, NE NW SE Section 16-10-11, had dug cellar and pits.

Pawnee County

Central Commercial Oil Co.'s No. 1 Rigsby, SE NE SE Section 17-20-9, Pawnee County, topped Dutcher sand at 2,510 ft., had sandy lime at 3,015-21 ft., total depth, plugged back to 2,523 ft., was shot and produced 5,000,000 cu. ft. of gas daily.

Johnson Oil Refining Co.'s No. 3 Dick, SW SW SE Section 21-20-9, was dry and abandoned in lime at 2,387-2,431 ft., total depth.

Same company's No. 1 Rich, NW NE NW Section 28-20-9, topped Red Fork sand at 2,091 ft., total depth 2,137 ft., and was dry and abandoned.

Sand Springs Home's No. 1 Dick, SW SE SE Section 21-20-9, spudded. Same operator's No. 1 Hemmings, SW SE SW Section 22-20-9, spudded. Brown's No. 2 Shissler, NE NE SW Section 21-22-7, was a location.

Kay County

West Virginia Co.'s No. 10 Will, CWL NE NW Section 20-28-1e, an old Kay County well, plugged back from 1,987 ft. to lime at 1,540-88 ft., acidized and pumped 10 bbl. of oil daily.

Continental Oil Co.'s No. 3 Walkingsky, C NW SE Section 18-25-2e, was a location.

Southwestern Oklahoma

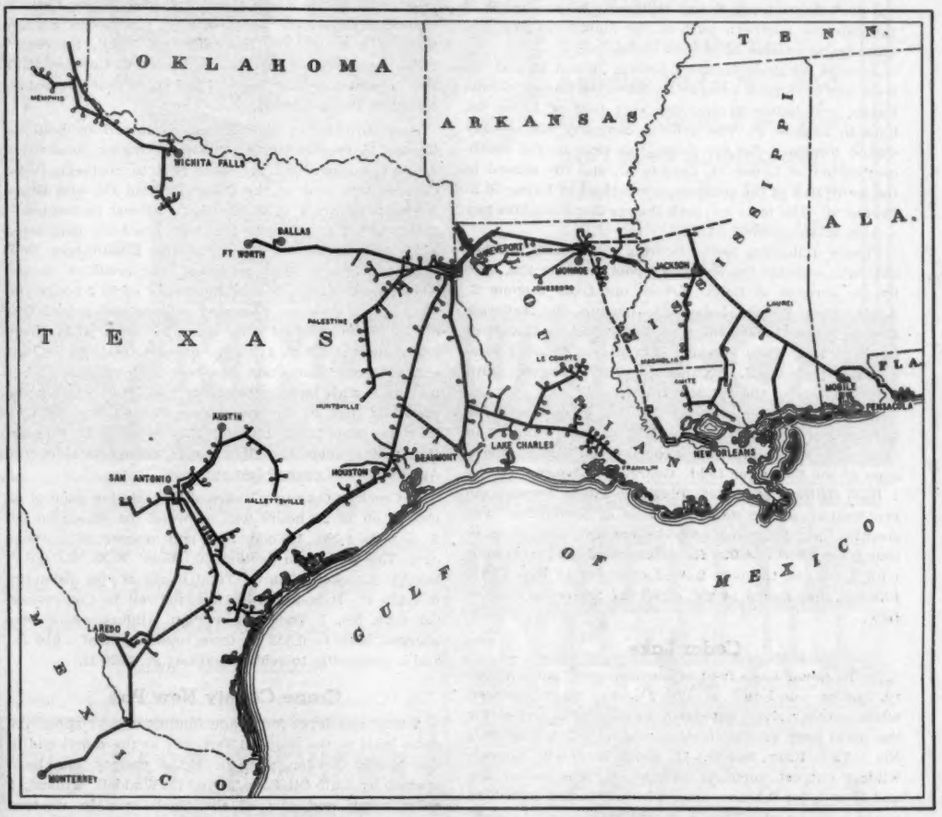
The largest producer completed in Oklahoma last week was Lauck Petroleum Co.'s No. 1 Newbern, NE NW SW Section 11-5-9w, Cement field, Caddo County. It found Rowe sand at 3,381-3,427 ft., set 7-in. pipe at 3,462 ft. and was bottomed at 3,465 ft. Casing was perforated. It flowed 551 bbl. of oil in 4 hours through casing and made daily potential of 3,307 bbl. of oil, with 1,500,000 cu. ft. of gas.

Gulf Oil Corp.'s No. 9 Kelly, SW SW NE Section 10-1n-20w, Altus area, Jackson County, topped granite wash at 1,526 ft., total depth 1,527 ft., swabbed 60 bbl. of oil in 24 hours and pumped 37 bbl. daily.

J. & E. Drilling Co.'s No. 1 Allbright, NE NW SW Section 16-1n-20w, Jackson County, was dry and abandoned at 1,766 ft., total depth.

Sunray Oil Co.'s No. 1 Kla-da-ing, SE NW SW Section 3-5-9w, Caddo County, was a location. Ohio Oil Co.'s No. 6 Lackey, SE SW NW Section 11-5-9w, had dug cellar and pits.

(Continued on Page 240)



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By
D. H. STORMONT

Extension of Slaughter Pool; Seventeen Wells to be Drilled

MIDLAND, Tex., Jan. 22.—Plans for new extension development, which includes a 17-well drilling campaign, were seen for the Slaughter pool of Hockley County to provide the top interest in West Texas during the week. The new drilling program will be by Delta Drilling Co., Tyler, on its 541 acres acquired in a farm-out deal with George Etz of Lubbock. All acreage is in the extreme northern part of the Slaughter pool, 306 acres being outside of proven limits.

Acreage obtained included Labors 21 and 13 and the west half of 3, all in League 41, Maverick County School Lands, and Labor 35 and the west half of Labor 56, both in League 40. The drilling company has already staked locations for two tests, the first in the southeast corner of Labor 21, League 41, and the second in the south half of the company's west half of Labor 56 in League 40. The tests will seek the regular Slaughter pay section at about 5,000 ft.

Closely following Delta Drilling Co.'s deal, another deal was seen for the Slaughter pool. George Etz, who let the acreage to Delta, farmed out from Eugene T. Adair, Fort Worth, Labor 31, League 39, Maverick County School Lands, the tract being just southwest of Delta Drilling Co.'s acreage. Etz has announced location for his No. 1 J. T. Caddell, 440 ft. from the south and east lines of the 161-acre tract.

Centering further attention in this increasingly important North Permian basin field was the bringing in of a new mile southwest extension on the southern edge of the Slaughter field. George P Livermore's No. 1 R. G. Glimp, Section 8, Block X, P.S.L. Survey, approximately a mile south and west of production, was cleaning out, following second-stage acid treatment in lime from 4,980 to 5,028 ft. After initial acid treatment with 1,000 gal. the well flowed open for 18 hours into pits and then gaged 14 bbl. of oil the following hour of flow.

Cedar Lake

In the Cedar Lake field of northeastern Gaines County, testing continued at the 2½-mile north outpost, while another short extension location was staked for the main body of the field. Stanolind Oil & Gas Co.'s No. 1 T. S. Riley, Section 11, Block H, D.&W. Survey, wildcat outpost north of production, was bailed dry and shut-in for 9 hours, after which it bailed 10 bbl. of water with no oil. The crew was attempting to swab cavings. Total depth is 4,864 ft. The new outpost was Stanolind's No. 2 American Warehouse, 660 ft. from the north and 1,980 ft. from the west lines of Section 5, Block H, D.&W. Survey.

In the extreme northern Permian basin area, almost in the southern Panhandle area, Swisher County has been given a location for a reported 6,500-ft. wildcat. Rig and equipment have been moved on location for Raymond Krupp and A. H. Flaherty, Sr., of El Paso and Midland respectively, No. 1 H. Kleen, C SW¼ Section 120, Block 10-M, A.B.&M. Survey.

Reports of another wildcat for northeastern Yoakum County were heard when T. N. Sloan announced tentative location in NW¼ Section 147, Block D, Gibson Survey. The site is about 6½ miles southwest of Sloan & Zook and T. N. Sloan's No. 1 Fitzgerald, Section 22, deep wildcat in the extreme northeastern part of Yoakum County.

South Basin

The bringing in of two more producers in the Johnson area, between the North Cowden and the Foster fields in Ector County, one providing a half-mile north extension, featured that area. Half-mile due north of the most northerly producer in the Johnson area, I.T. I.O. Co.'s No. 1-F Johnson, in the SW NW Section 34, Block 43, Township 2s, T.&P. Survey, flowed an estimated 50 bbl. of oil in 20 minutes after being cleaned out within 7 ft. of bottom at 4,107 ft. Completion would leave little more than a mile of open area between the North Cowden and the Foster pools. Should further drilling close this area, a strip some 20 miles long and about 3 miles wide would comprise the linked areas of the North Cowden, Foster and Addis fields.

Seeking production from the deep Holt pay on the north end of the North Cowden field in Ector County, Stanolind Oil & Gas Co.'s No. 1 W. F. Cowden, SE SW Section 4, Block 43, Township 1n, T.&P. Survey, 2 miles northwest of the end of the North Cowden field, was reported drilling below 4,385 ft. in lime. It is projected to about 5,200 ft.

Deep Ordovician prospecting continued to hold attention in Pecos County. Flush Ordovician production 2 miles southwest of the Apco pool in northern Pecos County, was seen at the Olson Drilling Co. and Bryce McCandless' No. 1 V. W. Crockett, wildcat in Section 5, Block 110, T.C. Survey. The well has been correlated some 100 ft. higher on top of the Ellenburger than producer in the Apco pool and was credited, as the week closed, with a flow of 286 bbl. of oil in 2 hours and 35 minutes with an estimated million and a half feet of gas daily. The oil zone was picked up while deepening from 4,479 to 4,518 ft., present total depth. Several traces of saturation had been encountered higher up along with large volumes of gas. It was after the crew had shut off the upper zone with packer and acidized the deep level that the flow was made. Completion will provide the first major extension since the Apco pool was opened last summer.

In Crockett County a Railroad Commission gage of 69 bbl. of oil in 24 hours was recorded for Stanolind Oil & Gas Co.'s No. 4 Todd, new pool opener of 2 weeks ago. The well is in Section 30, Block W.X., G.C.&S.F. Survey, Crockett County Total depth of the discovery is 1,225 ft. It is a southeast twin well to Continental Oil Co.'s No. 1 Todd, Ordovician wildcat which was plugged back to 6,332 ft. from total depth of 7,010 ft., and is preparing to acidize and test at 6,620 ft.

Crane County New Pay

A new pay level for Crane County and at about the same level as the deep 5,150-ft. pay at the north end of the North Cowden pool in Ector County has been opened by Gulf Oil Corp.'s No. 12 Waddell, wildcat, 2 miles north and east of the Tubb area in western Crane County. The new horizon is between the McKnight and Tubb pay and is from 3,635 to 3,640 ft. A gas volume of 1,000,000 cu. ft. was estimated, together with a spray of about 5 bbl. of oil daily. It has been shut down to install separator for a test.

WEST TEXAS COMPLETIONS

(24-hour gages)

Andrews County

In the Emma pool, Sinclair Prairie Oil Co.'s No. 9 E. Cowden, 4,186-4,246 ft., 1,137 bbl.

Crane County

In the McElroy pool, Gulf Oil Corp.'s No. 6-A Crier-McElroy, 2,740-2,903 ft., 1,713 bbl. Gulf Oil Corp.'s No. 37 McElroy, 2,655-2,885 ft., 1,297 bbl. Gulf Oil Corp.'s No. 37 McElroy, 2,949-70 ft., 360 bbl., old well drilled deeper.

Crockett County

In the Crockett pool, Frank B. Black's No. 8-B Powell, 2,604-15 ft., 862 bbl.

Ector County

In the North Cowden pool, Broderick & Calvert's No. 9 O. B. Holt, 4,195-4,400 ft., 1,803 bbl. Phillips Petroleum Co.'s No. 2 Midland National Bank, 4,145-4,420 ft., 924 bbl. Stanolind Oil & Gas Co.'s No. 26 Roberts, 4,305-4,505 ft., 1,068 bbl. Stanolind Oil & Gas Co.'s No. 28 Roberts, 4,295-4,500 ft., 1,863 bbl. Stanolind Oil & Gas Co.'s No. 29 Witcher, 3,960-4,185 ft., 2,060 bbl. Trinity Drilling Co.'s No. 3 Kelly, 4,202-4,310 ft., 180 bbl. In the Goldsmith pool, Cities Service Oil Co.'s No. 2-F Cummins, 4,180-4,280 ft., 129 bbl. In the Jordan pool, Kewanne Oil Co.'s No. 3-B University, 3,427-3,647 ft., 1,887 bbl. Parker Drilling Co.'s No. 3 Ida McDonald-Texas Co., 3,360-3,675 ft., 2,616 bbl. In the Harper pool, Stanolind Oil & Gas Co.'s No. 33-A E. F. Cowden, abandoned location. Stanolind Oil & Gas Co.'s No. 38-B, E. F. Codden, 4,085-4,225 ft., 1,321 bbl.

Hockley County

In the Slaughter pool, Stanolind Oil & Gas Co.'s No. 5-A A. A. Slaughter, 4,950-5,030 ft., 761 bbl.

Pecos County

In the Shearer pool, Arnold Oil Co.'s No. 3 Potts, 1,700-60 ft., 14 bbl. In the Lehn pool, W. E. Keeney's No. 3 Masterson-Lehn, 1,665-1,717 ft., 134 bbl. In the Pecos River bed area, Trans Pecos Oil Co.'s No. 1 Gallager, dry and abandoned at 2,240 ft. A wildcat, Stanley A. Thompson's No. 1 Elsinore, dry and abandoned at 7,342 ft.

Scurry County

In the Sharon pool, Helmerich & Payne, Inc.'s No. 1 W. Martin, 2,235-2,460 ft., 195 bbl. Magnolia Petroleum Co.'s No. 4 McClure, 2,260-2,450, 171 bbl. Robinson Brothers Oil Co.'s No. 2 Woodward, 2,336-2,502 ft., 130 bbl. J. B. Stoddard's No. 2 McClure, 2,257-2,462 ft., 127 bbl.

Upton County

In the McCamey pool, Pete Williams' No. 2 Burleson, temporarily abandoned at 930 ft. Ward-Pecos Petroleum Co.'s No. 1-B T. E. Shirley, location temporarily abandoned.

Ward County

In the Estes pool, Gulf Oil Corp.'s No. 120 O'Brien, 2,626-67 ft., 152 bbl. Gulf Oil Corp.'s No. 122 O'Brien, 2,740-2,847 ft., 132 bbl.

Yoakum County

In the Wasson pool, Magnolia Petroleum Co.'s No. 5 Mahoney, 4,952-5,196 ft., 1,177 bbl. Oil Development Co.'s No 2-763 fee, 4,978-5,215 ft., 615 bbl. Oil Development Co.'s No. 4-803 fee, 4,926-5,171 ft., 832 bbl. Plymouth Oil Co.'s No. 1-B R. Bennett, 5,050-5,295 ft., 914 bbl. Skelly Oil Co.'s No. 3 Hancock, 5,040-5,200 ft., 1,178 bbl.

WEST CENTRAL TEXAS

FORT WORTH, Tex., Jan. 22.—Considerable impetus was given Shackelford County's exploratory work by the opening of a large producer at Roeser & Pendleton, Inc.'s No. 1-B Cook, in the area which the operators opened just west of the Cook pool late in December. Stephens County's Stribling pool has several important and closely watched outpost tests, drilling or testing. South of the Bowles pool, 2½ miles, a wildcat location was made by John L. Reeves. Bringing in of the second producer and drilling of a third was seen for a new shallow field opened in the northwestern part of Callahan County late in December.

Three miles north of the Griffin pool in Jones County, Danciger Oil & Refineries, Inc. is drilling below 1,830 ft. in the wildcat in the Nelson lands, Section 186, Block 5, H.&T.C. Survey. Seven miles west of the Griffin pool John E. Farrell, Fort Worth, is moving in materials for No. 1 F. B. Reid, Section 31, D.&D. Survey. Both wildcats are seeking the Palo Pinto lime. Two miles north of the Farrell location, Iron Mountain Oil Co., Fort Worth, is preparing to move in ma-

terials for a wildcat in the I. F. Wiley lands, Section 14, D.&D. Survey.

Shackelford County's exploratory activity continued as Roeser & Pendleton, Inc., brought in another producer west of the large Cook pool. This area, opened about the middle of December at the No. 2-A Cook, is proving to be a separate structure from the large pool proper and is stimulating exploratory drilling in central Shackelford County. During the past week the operators brought in No. 1-B Cook, NE NW Section 113, E.T. Survey, a diagonal northeast offset to the discovery producer in the new area. The new well tested 20 bbl. hourly from 14 ft. of Cook sand drilled from 1,553 to 1,567 ft. The discovery made 40 bbl. daily from 1,566 to 1,582 ft. The firm plans a continuous drilling and development program.

Stephens County's Stribling pool has been given a north outpost producer and is in line for both west and east producers. The north outpost is William Steadman Jr.'s No. 1 Powers, southwest corner of the George H. York Survey. It topped saturated sand at 3,547 ft. and drilled 3 ft. into the section where the well was shut down for completion. On the southwest edge Grace & Woods' No. 1 Joe Beatty, W. M. Bales Survey, was preparing to drill into the pay section. On the east side an outpost is being started by Clyde Greathouse and others in the Robertson lands, Peter Norton Survey.

A wildcat location has been staked 2½ miles south of the Bowles pool in extreme eastern Taylor County by John L. Reeves, No. 1 N. A. Estes, SW¼ Section 4, Block 8, S.P. Survey, about 400 ft. east of the Taylor County line but in Callahan County. Production will be sought from the 1,750-ft. sand in the 12-well Bowles pool.

A new area in Callahan County is receiving development as the second well was brought in and a third is drilling. The small, shallow pool was opened late in December by A. A. Hutton's No. 1 A. A. Slaughter, NW SE Section 7, D &D.A. Survey, completed for about 40 bbl. from sand found at 380 ft. The new producer is Trumpter Oil Corp.'s No. 1 G. M. Slaughter, SE 40 acres of the SE¼ Section 7, just southwest of the discovery. The test drilled saturated sand from 377 to 380 ft. and started flowing at the rate of about 50 bbl. daily. Trumpeter Oil Corp. is preparing to move north for its No. 2 Slaughter. The area is about 7 miles northwest of Putnam.

Haskell County's indicated pool opener of last week, K. B. Nowles' No. 1 Pardue, Section 1, S.F.I.W. Survey, is plugging back to 3,420 ft. after sulfur water started flowing from the total depth of 3,438 ft. Testing will continue back up the hole to 3,398 ft. where first saturation in the Palo Pinto lime was found several weeks ago. The test is southeast of the old two-well Pardue pool.

PANHANDLE COMPLETIONS

(24-hour gages)

Carson County

Magnolia Petroleum Co.'s No. 69 fee (244), 3,038-75 ft., 383 bbl. Texas Co.'s No. 16 Boney, 3,050-90 ft., 471 bbl. Northern Natural Gas Co.'s No. 1 Clark, 2,810-72 ft., 12,027 cu. ft. gas. Northern Natural Gas Co.'s No. 1 Vicars, 2,840-2,950 ft., 6,400,000 cu. ft. gas.

Gray County

Humble Oil & Refining Co.'s No. 8 Haggard, 3,148-3,215 ft., 429 bbl. King Oil Co.'s No. 2 Horner, 3,209-62 ft., 548 bbl. R. B. Pringle's No. 12 North Volmert, 3,236-87 ft., 432 bbl. Magnolia Petroleum Co.'s No. 16 Haggard, 3,240-3,300 ft., 168 bbl. Shell Oil Co., Inc.'s No. 10 Finley-Hoffman, 2,860-2,914 ft., 230 bbl. Texas Co.'s No. 23 Williams, 2,795-2,825 ft., 1,040 bbl. Skelly Oil Co.'s No. 2 McKay, 2,515-2,750 ft., 20,000,000 cu. ft. gas.

Hutchinson County

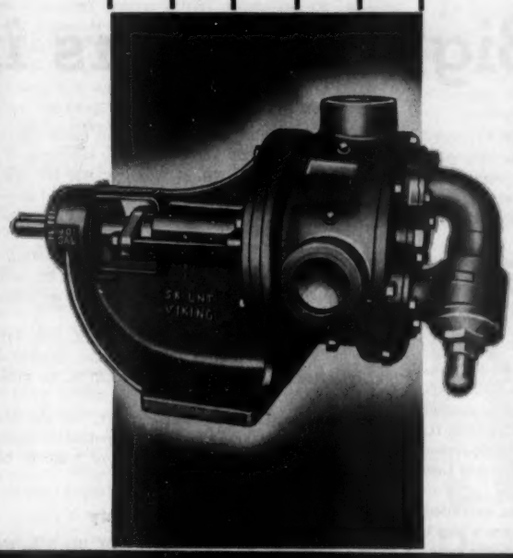
Alma Oil Co.'s No. 8 Whittenburg, 2,940-3,000 ft., 27 bbl. Kewanee Oil Co.'s No. 41 Badger-Lewis, 2,920-68 ft., 253 bbl.

Moore County

Phillips Petroleum Co.'s No. 1 Kane, 2,960-3,340 ft., 49,200,000 cu. ft. gas. Phillips Petroleum Co.'s No. 1 Spur, 2,975-3,200 ft., 29,000,000 cu. ft. gas.

Wheeler County

Magnolia Petroleum Co.'s No. 6 Worley, 2,396-2,414 ft., 127 bbl. oil and 93 bbl. water, pumping, in 24 hours.



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Kansas Developments

By
DAL DALRYMPLE

Hall, Zenith Pools Extended; Big Producers in Russell-Ellis

Field activity was at a virtual standstill in many Kansas areas because of cold weather, but the past week was not without the extensions and discoveries that customarily feature the oil news of this state. First reports of new operations included six wildcats in as many counties.

The Hall pool in Russell County was extended ½ mile eastward at R. H. Shields' No. 1 Shaffer, NE NE SE Section 34-14-13w. After acid treatment, the outpost was completed for initial daily potential of 511 bbl. of oil at total depth of 2,870 ft. in Lansing lime.

Phillips Petroleum Co.'s No. 1 Petz, CSL SE NE Section 7-20-11w, outpost midway between the Ellinwood and West Ellinwood sectors in Barton County, topped Arbuckle lime at 3,302 ft. and was bottomed at 3,319 ft. Oil rose 850 ft. in the hole; in preliminary production tests it swabbed 1 bbl. of oil an hour. Bailer was lost in the hole, delaying completion test.

The Zenith field, in Stafford County, was extended one location northward at Deep Rock Oil Corp.'s No. 1 Turner, C S½ SW SW Section 2-24-11w. Misener sand, principal producing area at Zenith, was found at 3,684-98 ft., and Viola lime was drilled at 3,704-48 ft., total depth. It flowed 25 bbl. of oil an hour for 7 hours before being killed to treat with acid. Location is in a sector of the field previously "condemned" by the drill. One mile east of No. 1 Turner, a well was abandoned as dry after losing 1,700 ft. of casing in the hole, although a showing of oil had been found in the Misener zone. The extension producer is north of a Stanolind Oil & Gas Co. tract on which a 3,000-bbl. maximum producer recently was completed

Stanolind Oil & Gas Co.'s No 1 Michael, C W½ NW NW Section 36-14-14w, ¼ mile north of the Michel pool, Russell County, found basal sand at 3,153-56 ft., total depth, and oil rose 2,700 ft. in the hole.

Skelly Oil Co.'s No. 7-A Miles, C NE¼ Section 30-27-10w, Cunningham field, Kingman County, gaged 77,225,000 cu. ft. of gas on open flow test and was completed at total depth of 3,972 ft. in Viola lime.

Completions of the week included the following:

Russell County

Phil-Han Oil Co.'s No. 1 Mills, SE SW SW Section 12-14-15w, Gorham area, Russell County, was acidized and made initial daily potential of 939 bbl. of oil at total depth of 3,165 ft., in Lansing lime.

Cities Service Oil Co.'s No. 4-C Tittle, NW cor, Section 13-15-14w, Trapp field, was bottomed at 3,104 ft., in Arbuckle lime, was acidized and on potential retest made 1,087 bbl. of oil daily.

Coralena Oil Co.'s No. 1 Ehrlich, SW SE SW Section 19-14-13w, between the Gurney and Hall pools, topped Lansing lime at 2,900 ft., drilled to 3,190 ft., total depth, plugged back and perforated at 2,933-90 ft., and after acid treatment made daily potential of 2,662 bbl. of oil.

Skelly Oil Co.'s No. 8 Rein, Jr., CNL NW SW Section 8-15 13w, Coralena area, was treated with acid and made 24-hour potential of 1,252 bbl. of oil at total depth of 3,003 ft. in Lansing lime.

W C. McBride, Inc.'s No. 5 Jellison, NW NW NW Section 19-13-14w, Atherton pool, was rated good for 845 bbl. of oil daily after acidizing and was completed at total depth of 3,270 ft. in Arbuckle lime. It extends the pool ¼ mile westward.

Ellis County

Shell Oil Co., Inc.'s No. 30 Rumsey, SE NE NE Section 23-11-17w, Bemis field, was bottomed at 3,400 ft. in Arbuckle lime and was completed for daily allowable potential of 3,000 bbl. of oil after depthograph calculation.

Phillips Petroleum Co.'s No. 2 Sites, C N½ NE SW Section 12-11-18w, Burnett field, was bottomed at 3,351 ft. in Arbuckle lime, was acidized and made top allowable potential of 3,000 bbl. of oil after acidizing.

Shell Oil Co., Inc.'s No 31 Rumsey, SW NE NE Section 23-11-17w, Bemis area, made daily initial potential of 303 bbl. of oil at total depth of 3,441 ft. in Arbuckle lime.

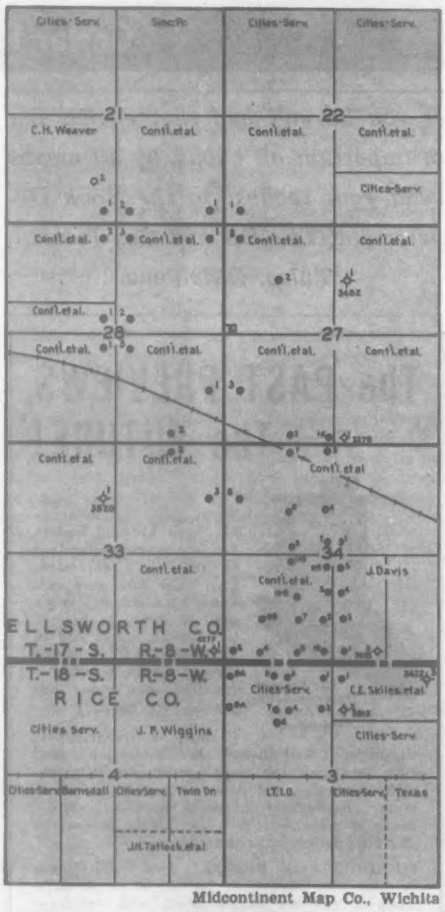
C. U. Bay's No. 2-B Ridley, SE NW SE Section 1-11-18w, Burnett field, was bottomed at 3,506 ft., acidized and completed for top allowable potential of 3,000 bbl. of oil daily.

Earl F. Wakefield's No. 2 Burnett, CEL NW NE Section 1-11-18w, was treated with acid and rated at 3,000 bbl. of oil daily at total depth of 3,520 ft. in Arbuckle lime.

Gulf Oil Corp.'s No. 3 Koerner, CSL NE SW Section 11-12-18w, Walter area, had initial potential rating of 3,000 bbl. of oil daily at total depth of 3,689 ft. in Arbuckle lime, topped at 3,684 ft.

Greenwood County

Ward McGinnis' No. 1 Morgan, NW SE NW Section 7-24-12w, Greenwood County, was abandoned at 1,921 ft., total depth, in Mississippi lime, with a hole full of water.



Midcontinent Map Co., Wichita

The Edwards pool in Ellsworth and Rice counties was enlarged considerably in 1939 and is due further development this year. At the end of 1938 there were 37 wells with total potential of 23,052 bbl.; in 1939 this had increased to 53 wells with 44,581 bbl. potential

W. M. Ellis' No. 1 Jack, C NE SE Section 31-22-12, found Bartlesville sand at 1,884-1,930 ft., total depth, and produced 20 bbl. of oil daily.

Among the Wildcats

A gas area was opened west of Olathe and north of the Gardner area, in Johnson County, at F. J. Kasper's No. 1 Kaths, SE SE NW Section 33-13-22. Knobstown sand was found at 350-365 ft., with 46,000 cu. ft. of gas. Upper Squirrel sand was topped at 595 ft., lower Squirrel sand was found at 658-659 ft.; Admire shale 690 ft., and it was completed at total depth of 794 ft. for an estimated 500,000 cu. ft. of gas daily.

Hammer & McLean Drilling Co.'s No. 1 Swenson, CSL SW NE Section 9-18-4w, was an abandoned location in McPherson County.

Carey & Jennings' No. 1 Kelley, SE NW SW Section 20-27-4, Butler County, was abandoned at 2,660 ft., total depth.

Estimated Daily Production

Estimated daily production for Kansas for the week ended January 19, and for the preceding week was as follows:

	Barrels	
	Jan. 19	Jan. 12
Oxford City	800	700
Burrton	9,350	9,250
Ritz-Canton	4,200	4,100
Graber	3,000	1,950
Hollow-Nikkel	1,650	1,700
Lerado	1,100	900
Voshell	1,650	1,600
Wellington	2,000	1,950
Ellsworth County:		
Lorraine	1,800	1,700
Other pools	1,910	1,855
Rice-Barton counties:		
Bloomer	5,300	3,700
Chase	5,050	5,350
Geneseo	4,900	4,300
Raymond	550	500
Silica	11,700	11,450
South Silica	2,750	2,900
Keesling	800	350
Wherry	3,750	3,300
Miscellaneous Rice	2,095	3,595
Miscellaneous Barton	6,455	5,350
Trapp district	12,400	11,250
Balance Russell County	18,185	19,335
Sedgwick County	3,300	3,200
Ellis County:		
Bemis	6,950	6,650
Miscellaneous	8,575	5,875
Kingman County	920	775
Stafford County	6,500	6,500
Greenwood County	8,100	8,200
El Dorado	7,300	7,500
Other fields	33,610	31,715
Total Kansas	176,650	167,500

Barton County

Gulf Oil Corp.'s No. 2 Shartz, CWL NW SW Section 18-20-11w, Barton County, found Arbuckle lime at 3,317 ft., total depth 3,383 ft., and was dry and abandoned.

Rice County

Cities Service Oil Co.'s No. 2 Pulliam, CWL SE¼ Section 33-19-9, topped Arbuckle lime at 3,325 ft., total depth 3,424 ft., and was dry and abandoned.

McPherson County

Mid-Continent Petroleum Corp.'s No. 1 Peterson, CWL NW SW Section 29-20-5w, McPherson County, Bornholdt area, topped chat at 3,337 ft., total depth 3,363 ft., and flowed 160 bbl. of oil in 2 hours.

Cowley County

Springrose Drilling Co.'s No. 1 Waite, NE NE SW Section 28-31-4, Cowley County, found water in Arbuckle lime at 3,372-73 ft., total depth, and was abandoned.

Butler County

Associated Oil Co.'s No. 12 Cook, SW NE NE Section

4-26-5, Butler County, found Viola lime at 2,595 ft., total depth 2,612 ft., was acidized and made daily potential of 120 bbl. of oil.

New Operations

Rex & Morris' No. 1-A Wright, Section 30-28-8e, C N½, Lot 16, Butler County wildcat, was moving in cable tools. Seaney & Clampitt's No. 1 Morrison, CSL SW NE Section 32-10-17w, outpost in Rooks County, was a location. J. J. Hall's No. 1 Smith A, C W½ NW NE Section 13-12-16w, Ellis County wildcat, was rigging up cable tools. Lambertson and others' No. 1 Green, SW NE SW Section 25-14-22, Johnson County wildcat, had a slight showing of oil in Burgess sand at 1,038 ft., total depth 1,040 ft., and was shut down Aladdin Petroleum Co.'s No. 1 Bitikafer, C N½ NE NW Section 1-20-1w, wildcat in McPherson County, had dug cellar. Phillips Petroleum Co.'s No. 1 Steven, SE SE NW Section 36-17-10w, Ellsworth County wildcat, was a location.

Hawkeye Oil Co.'s No. 6 Hittle, SE SW NE Section 21-31-4, Hittle pool, Cowley County, was a location. Sinclair Prairie Oil Co.'s No. 3 Graham, NW NE SE Section 4-26-5, El Dorado field, Butler County, was drilling with cable tools below 500 ft. Gulf Oil Corp.'s No. 8 Mal, C S½ NW SE Section 14-11-17w, Bemis field, Ellis County, was rigging up rotary.

Phillips Petroleum Co.'s No 1 Roesner, C S½ NW SE Section 9-15-13w, Coralena area, Russell County, was a location. Gulf Oil Corp.'s No. 11 Mollie, C W½ W½ SE Section 25-15-14w, Trapp field, was drilling with rotary below 1,880 ft. Transwestern Oil Co.'s No. 2 Banker, CE½ SE SE Section 10-24-11w, Zenith field, Stafford County, was a cellar. Stanolind Oil & Gas Co.'s No. 6 Harbeson, C N½ N½ NW Section 11-24-11w, was a location. Barbara Oil Co.'s No. 1 Thompson D, C S½ SW Section 9-33-13w, Medicine Lodge area, Barber County, had dug cellar for a rotary test.

Steibar Oil Corp.'s No. 8 Frankum, C S½ NW NE Section 33-31-1w, Wellington field, Sumner County, was moving in rotary material. Schneider & Pulse's No. 1 Ernsting, C S½ SE SW Section 6-20-11w, West Ellinwood area, Barton County, was a rotary rig. Alpine Oil & Refining Co.'s No. 1 Andrae, C S½ SW NE Section 8-20-11w, Ellinwood area, was location for a rotary test. Sinclair Prairie Oil Co.'s No. 1 Dolechek, C S½ NW NW NW Section 32-16-11w, Krier pool, Barton County, was building rotary rig. Shell Oil Co., Inc.'s No. 3 Radenburg, NW SW NW Section 3-17-11w, Kraft area, was a cellar for rotary test. Indian Territory Illuminating Oil Co.'s No. 2 Boye, C W½ NW NW Section 16-16-10w, Stoltenberg area, Ellsworth County, was location for a rotary test.

Vickers Petroleum Co.'s No. 4 Roesler, C E½ NE SW Section 5-18-10w, Bloomer field, Rice County, drilled with rotary to 240 ft. and set 10-in. pipe. Texas Co.'s No. 3 Gurney, C W½ NW NE Section 23-14-14w, Gurney area, Russell County, was building rotary rig.

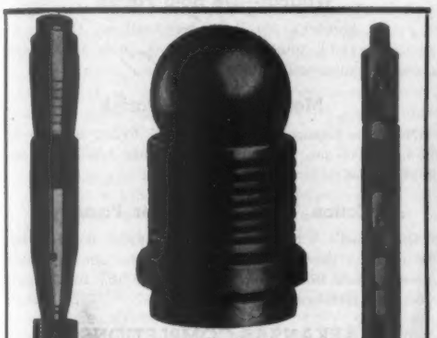


Fig. 1

Fig. 2

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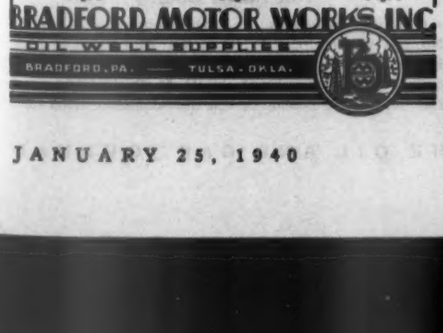

Fig. 3 Fig. 4 Fig. 5

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Forest City Basin Activity

ST. JOSEPH, Mo., Jan. 22.—Subzero temperatures have practically put a stop to field operations in the Forest City basin.

Miller and others' No. 1 Corrough, C SE SE Section 24-57-35w, east of St. Joseph, Buchanan County, Missouri, was scheduled for abandonment. It had Viola lime at 1,982-2,181 ft., Wilcox sand 2,181-2,245 ft., topped Arbuckle lime at 2,245 ft., and was shut down at 2,260 ft., with water in the hole.

Morrow and Rodgers' No. 1 Seamster, C N½ SW SE Section 6-65-13w, Schuyler County, Missouri, was reported abandoned at about 800 ft.

T E. Baldwin and others were due to test a showing of oil at No. 1-A Johnson, NW NE NE Section 21-65-15w, Schuyler County, as soon as casing could be run to shut off water, weather permitting. The oil showing was found in Hunton lime at 1,100 ft.

In the Richardson County, Nebraska, sector of the basin, the Forest City Basin Syndicate was reported to have staked location for No. 1 Windle, SE NE SE Section 3-1n-15e, near Salem and northwest of Falls City. An 85-ft. derrick and tools were being moved in, it was reported. The Falls City discovery well, Pawnee Royalty Co.'s No. 1 Boice, C NE NE Section 18-1n-16e, total depth 2,292 ft. in Hunton lime, continues to average about 100 bbl. of oil daily, with around 300 bbl. of water. The company's No. 1 Meyer, C NW NW Section 24-1n-15e, was drilling below 2,700 ft.

Ohio Fields

NEWARK, Ohio, Jan. 22.—Operations in the Ohio fields have been slackened by unfavorable weather. Nine completions were reported, five gas wells, two oil wells, and two dry holes. Perry County tests show gasoline and water in the Clinton sand. The Trenton test in Knox County has suspended operations until more favorable weather.

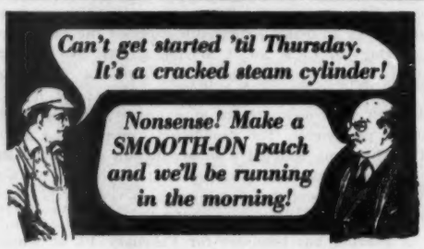
In Cuyahoga County, Mayfield Village, Benedum & Trees' No. 1 Frank W. McGurrer, Lot 20, made 540,000 cu. ft. of gas open flow and 25 bbl. of oil naturally from the Newburg at 2,910-29 ft., no acid treatment. In Rockport Township, William Dempsey's No. 1 Charles Hahn, Lot 25, had a small gas showing in the Clinton, abandoned at 2,460 ft.

In Guernsey County, Valley Township, Jewell Co.'s No. 1 J. Q. Cubbison, Section 11, gaged 125,000 cu. ft. in the Berea at 1,329 ft. In Knox County, Howard Township, Upham Gas Co.'s No. 1 Edward Hawkins, Lot 27, first quarter, has an open flow of 780,000 cu. ft. of gas in the Clinton, total depth 2,659 ft. In Licking County, Perry Township, Gail Earley's No. 4 Charles Lothes, Section 7, made 4 bbl. of oil the first day after shot in Berea at 688-99 ft.

In Perry County, Clayton Township, Preston Oil Co.'s No. 2 William Griffith, Section 17, is a gas well good for 700,000 cu. ft. open flow in the Clinton 3,198-3,235 ft. In Monroe Township, Ohio Fuel Gas Co.'s No. 1 Frank L. Rumer, Section 22, had the Clinton at 3,696-3,722 ft. with oil and gas showing in the top and water coming in at 3,719 ft.; 10 bbl. of gasoline and light oil was swabbed after water plugged off, abandoned after testing.

In Summit County, Green Township, Obermiller Brothers' No. 1 John Boettler, Section 36, is a small gas well in the Clinton gaging 100,000 cu. ft. at 4,442 ft. In Washington County, Fearing Township, Lorentz Brothers' No. 1 C. Lorentz, Lot 103, made 10 bbl. of oil the first day after shot in the Macksburg 500-ft. sand at 964-76 ft.

The test drilled by Stevens & Kiner in Seneca County, Pleasant Township, on the Albert Abbott land, Section 29, topped the Trenton at 1,465 ft., a small showing of oil at 1,505 ft., still drilling.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North Louisiana, Arkansas

By
GEORGE WEBER

New Producer at Dorcheat; West Extension to Magnolia

SHREVEPORT, La., Jan. 22.—Zero weather halted most drilling in North Louisiana and Arkansas late in the week. A west extension to Magnolia in Columbia County is washing in and numerous wildcats in both states are making progress, although not yet at critical stages.

Dorcheat, one of Arkansas' latest Smackover-lime discoveries, gained another producer, and a move is under way to make a thorough study of the field. The Superior Oil Co.'s No. 1 Martel, C SW SW Section 10-18-22, set 5½-in. casing at 8,859 ft. and drilled to 8,865 ft. At latest reports it was flowing 14 bbl. hourly through a 14/64-in. choke at a gas-oil ratio of 8,000 cu. ft. per barrel. The production averages 54.8 gravity. This well, coupled with production characteristics of others, has led operators and engineers of the Arkansas Oil and Gas Commission to believe the field may be a high-pressure gas-condensate pool.

A hearing has been set for February 19, at which this possibility will be weighed. If the field is found to be a gas field, producing condensate at reduction of pressure in the retrograde condensation range, the commission, together with operators, will devise a development plan, possibly entailing wider spacing than the present 40-acre pattern, and providing for recycling operations. Under present statutes, compulsory spacing in oil fields may not exceed 40-acre patterns, but if the field is proved to be a gas field, wider spacing is allowed. This possibility will prove beneficial in developing Dorcheat, since the cost of drilling 9,000-ft. wells for the type of production obtained to date is economically unsound, and wider spacing, together with recycling, will provide greater recovery at less investment cost.

Magnolia Field

At the extreme west end of the Magnolia field, also in Columbia County, Arkansas, Normandie Oil Corp. is washing in No. 1 H. E. King for an extension. It topped the Buckner at 7,575 ft., Smackover lime at 7,582 ft. and porosity in the lime at 7,621 ft. A string of 7-in. casing was set at 7,626 ft., total depth 7,630 ft.

Arkansas' two deep wildcats continued active with no indications of success or failure. In western Columbia County, Gulf Refining Co.'s No. 1 Lewis, 1½ miles north and 4 miles west of Dorcheat, is drilling in red sandy shale below 8,550 ft. In Union County near the Louisiana line west of Junction City, Barnsdall Oil Co.'s No. 1 Cameron has run a survey to 8,000 ft., and is drilling in hard sand and shale at 8,012 ft.

In North Louisiana, two important wildcats continued. Harry Hanbury's No. 1 Holston Unit in Bienville Parish is drilling below 2,250 ft., and in La Salle Parish, Hunt Oil Co. and Arkansas Fuel Oil Co.'s No. 1 Goodpine, 6 miles east of Urania, is drilling in shale below 4,660 ft. after running survey to 3,039 ft.

The deep Lisbon well, Lisbon Exploration Co.'s No. 1 Vaughn, was tested last week, making a gage of 142 bbl. daily through a 1/4-in. choke with separator pressure at 800 lb., tubing pressure at 2,500 lb. and casing pressure at 3,100 lb. The bottom-hole choke had been removed. Gas production during this test was metered at 7,800,000 cu. ft. Improved separation equipment at the surface will be installed shortly, which will increase the yield of condensate from the high-pressure gas well. Gas from the deep producer will be used in repressuring the Pettit horizon, following thorough tests of that zone of the field.

Two deep wildcat failures neared completion. In Caddo Parish Stanolind Oil & Gas Co.'s No. 131 Dillon, Pine Island test, tested mud on three drill-stem tests at 3,910-20 ft., 3,928-34 ft. and 3,903-47 ft. and was milling out 9⅝-in. casing. In Morehouse Parish Union Producing Co.'s No. 1-A Tensas Unit has plugged back from 10,485 ft. to 2,250 ft. and will complete as a Monroe gas well.

Production by Pool

Estimated daily gross production all companies week ended January 19:

SOUTH ARKANSAS

	Bbl.
Bellevue	475
Caddo light	5,135
Caddo heavy	2,235
Converse	510
Cotton Valley	*13,435
Cross Lake	5,800
De Soto and Red River	1,085
Elm Grove	310
Haynesville	2,735
Holly	75
Homer	2,720
Lisbon	5,530
Pleasant Hill	100
Rodessa	22,035
Sarepta-Carterville	†290
Sligo	1,850
Sugar Creek	235
Urania	2,600
Zwolle	2,170
Total North Louisiana	69,325

NORTH LOUISIANA

Atlanta	765
Big Creek	Shut in
Buckner	2,625
Champagnolie	1,320
Dorcheat	1,100
El Dorado	1,740
Lewisville	500
Lisbon	225
Magnolia	20,250
Miller County	250
Nevada	560
Rodessa	2,650
Schuler	18,545
Smackover light	1,870
Smackover heavy	14,250
Stephens	515
Troy	1,225
Urbana	935
Village	1,395
Total South Arkansas	70,720

Texas side of Rodessa 25,470 bbl.
*3,210 bbl. is distillate. †95 bbl. is distillate.

NORTH LOUISIANA COMPLETIONS

Caddo—Caddo Parish

Burnham Drilling Co.'s No. 4 Wilkinson, 890 ft. north, 330 ft. east, SW cor. NE SE Section 33-22-16, tested salt water and abandoned, total depth 2,440 ft. Roy T. Davis' No. 1 Hanner, Section 1-20-16, 35 bbl. open tubing, total depth 1,650 ft. Holcomb & Thomason's No. 1 Butler, Section 23-22-16, salt water and abandoned, total depth 2,804 ft. Stanolind Oil & Gas Co.'s No. 6 Huckaby, Section 11-21-15, pumping 30 bbl., total depth 1,743 ft. Temple Oil Co.'s No. 4 Bostwick, 230 ft. south, 323 ft. west, NE cor. SW SW Section 13-22-16, salt water and abandoned, total depth 2,642 ft. Temple Oil Co.'s No. 5 Bostwick, 330 ft. north, 223 ft. east, SW cor. NE SW Section 13-22-16, salt water and abandoned, total depth 2,606 ft. Texas Co.'s No. 3 Guy & Richardson, Section 1-20-16, 130 bbl. open tubing, acidized with 4,000 gal., total depth 1,518 ft.

Shreveport—Caddo Parish

C. H. Lyons' No. 1 Bluestein, 548 ft. south, 260 ft. east, C Section 35-18-14, 408 bbl., ¼-in. choke, tubing pressure 200 lb., casing pressure 550 lb., porous lime 5,552-62 ft., 5½-in. casing 5,553 ft., total depth 5,562 ft.

Zwolle—Sabine Parish

Hayner and others' No. 1 Sabine, 330 ft. north, 497 ft. west, SE cor. Section 13-7-12, total depth 2,970 ft., dry and abandoned, show gas. Major Oil Co.'s No. 1-B Sabine, 330 ft. NW cor. NE NE Section 8-7-13, salt water and abandoned, total depth 2,555 ft. Reirue Oil Co.'s No. 1 Sabine, 330 ft. SE cor. NE NE Section 8-7-13, old total depth 3,547 ft., plugged-back total depth 2,350 ft., tested small show oil and abandoned. J. E. Stack's No. 1 Weber, 330 ft. SE cor. SW NE Section 8-7-13, set 10-in. casing 42 ft., abandoned, will not drill.

Wildcat—De Soto Parish

N. W. Hunter's No. 1 Anders-LeBlanc, C NW SE Section 5-11-14, total depth 4,818 ft., hole junked, rig moved, temporarily abandoned.

Monroe—Union Parish

Memphis Natural Gas Co.'s No. 7 Frost, Section 22-22-3, 750,000 cu. ft. gas, rock pressure 1,030 lb., total depth 2,202 ft.

Cotton Valley—Webster Parish

Quad Oil Co.'s No. 1 Gray, 735 ft. north, 600 ft. west, SE cor. Section 27-21-10, 264 bbl., ¼-in. choke, tubing pressure 625 lb., casing pressure 850 lb., total depth 5,679 ft. Holloway sand 5,648-69 ft.

ARKANSAS COMPLETIONS

Dorcheat—Columbia County

Superior Oil Co.'s No. 1 Martel, C SW SW Section 10-18-22, 336 bbl., 14/64-in. choke, porous lime 8,810-65 ft., total depth 8,865 ft.

Wildcat—Nevada County

O. T. Clark's No. 1 T. M. Bemis, 330 ft. NW cor. NW NE Section 23-10-22, rigged up and abandoned, will not drill.

Smackover—Ouachita County

Harry Steffen's No. 2 F. A. Laney, Section 36-15-16, total depth 2,834 ft., salt water and abandoned.

EAST TEXAS BORDER COMPLETIONS

Wildcat—Marion County

M. D. Fitzwater's No. 1 Mrs. Mary S. Duncan, J. Fitzgerald Survey, dry and abandoned, total depth 2,577 ft.

Michigan Fields

(Continued from Page 225)

Muskegon County

Fruitport Township (9n-16w)—C. E. Bliss' No. 1 Martin Hagen, NE NE NW Section 34, was abandoned as dry at 2,100 ft.

Ottawa County

Tallmadge Township (7n-13w)—Twin Drilling Co.'s No. 2-B McKay, NE SW SW Section 24, acid-treated at 1,905 ft., produced 100 bbl. a day. Century Oil & Gas Co.'s No. 2-C Riordan, SE NW NW Section 25, was rated at 750 bbl. after acid, from 1,874 ft. Gordon Oil Co.'s No. 3 Heyboer, NW NE SW Section 25, produced 25 bbl. from 1,881 ft. after being acidized, and W. R. Borough, Inc., and others' No. 4 Elizabeth Brady, NE NW NE Section 25, 400 bbl. after treatment at 1,899 ft. Twin Drilling Co.'s No. 2-C F. D. McKay, SE NE NE Section 26, was good for 1,200 bbl. initially, after treatment, at 1,865 ft. Robert W. Atha's No. 1 Walter Bergmen, NE NE SE Section 26, was dry at 1,987 ft.

Van Buren County

Columbia Township (1s-15w)—Clapsaddle & Harris' No. 2 Willerton, SE NW NE Section 23, treated at 1,196 ft., produced initially at the rate of 260 bbl. a day.

Covert Township (2s-17w)—W. H. Bochenek's No. 1 fee, NE SE SW Section 3, was abandoned at 1,205 ft.

Texas and Louisiana Gulf

By
NEIL WILLIAMS

Prospect in Iberia Parish; Montgomery County Show

HOUSTON, Tex., Jan. 22.—Ralph Sturm and Morris Womack's No. 2 Foster estate, a Tertiary Wilcox test in the Willis area, Montgomery County, was holding the attention of Gulf Coast operators as the result of a gas and distillate showing logged in the Wilcox formation at intervals from 6,758 to 6,838 ft. The section was logged as sand and sandy shale, and several cores recovered in the section carried evidence of gas and distillate production. No drill-stem test was attempted and the well is coring ahead in shale below 6,974 ft. It is in the Abraham Pevehouse Survey, about 1½ miles west of Todd & Garvey's No 1 Foster estate, a dry hole, reported to have cored sand with an oil show below 7,000 ft.

In the Garwood area, Colorado County, W. R. Davis & Co. was expected to reperforate casing in No. 1-A J. R. McLane, in an attempt to get the well to flow. It is bottomed in the Wilcox sand at 10,536 ft., and 814 ft. of 5½-in. liner was set on bottom. The liner was perforated at 10,330-10,362 ft., with 166 holes, 10,394-10,410 ft., with 72 holes, and at 10,424-38 ft. The hole was swabbed down to 5,000 ft., and the well shut down. Shut-in working pressure is 200 lb. The well is in the I.&G.N. Survey 41, and has logged several showings of oil and gas in the Wilcox horizon.

The Rosenberg field, Fort Bend County, was apparently extended ½ mile southwest as Fred Browning's No. 1 F. Sacha, was flowing wash water and gas while cleaning out through a ⅛-in. choke. Tubing pressure was 950 lb. and casing pressure 300 lb. The hole is bottomed at 8,195 ft., and the well is testing through perforated casing at 8,181-85 ft. The completion opens a deeper horizon for the field as the discovery well was completed as a distillate producer in a sand section at approximately 7,600 to 7,000 ft.

Approximately 3½ miles northeast of the above well, Magnolia Petroleum Co.'s No. 1 Huntington, the discovery well of a new field, flowed 17 bbl. of water-white distillate per day through a 3/16-in. choke. Tubing pressure was 175 lb. and shut-in casing pressure 575 lb. This is the first gage to be made since the well was recompleted the previous week from new perforations at 8,248-54 ft. Ray N. Ranger's No. 1 Sugarland Industries, about 3 miles north of the Magnolia producer, is shut down in the Yegua formation at 7,731 ft., with no shows reported.

Southwest of the town of Wharton in Wharton County, J. F. Hutchins was preparing to complete No. 2 A. P. Borden as a gas well. The well was drilled to a total depth of 5,500 ft., and 5½-in. casing was cemented at 4,840 ft. to test a sand section at 4,720-50 ft., where a drill-stem test the previous week tested 600 lb. working pressure and 30 ft. of drilling mud.

In the Chocolate Bayou field, Brazoria County, Glenn McCarthy's No. 2 Houston Farm Development Co., about 3,000 ft. northwest of the discovery well is bottomed at 10,502 ft., with 7⅝-in. casing cemented on bottom. The well may be carried several hundred feet deeper before a production test is attempted. The same operator's No. 1 Dr. Andrau, 1½ miles northwest of the discovery well was perforating casing preparatory to making a series of production tests of several sand sections logged by an electrical survey at intervals from 9,970-10,522 ft.

In the West Ranch field, Jackson County, Superior Oil Corp.'s No. 1 Simon and Seidel, located on the north edge of production, is drilling below 6,000 ft. A drill-stem test in the formation at 5,755-67 ft., is reported to have recovered oil and salt water.

Locations for five wildcats were announced. In Harris County, and flanking the Fairbanks field, T. A. Carlton Oil Co. is rigging up No. 1 J. J. Sweeney, 3 miles northwest of the field in the G. W. Eaton Survey. Northeast of production about 1½ miles, Thompson Drilling Co. has derrick up for No. 1 Katie Fuchs in the James Doswell Survey. In Liberty County, about 6 miles southeast of Hamshire, Fidelity Oil & Royalty Co. staked No. 1 J. J. Craigen, a projected 9,000-ft. test in the J. E. Broussard Survey. Northeast of Katy in Waller County, Cities Service Oil Co. staked No. 1 P. V. Cook, a Yegua-sand test in the H.&T.C. Survey 60. Northeast of Blessing, Matagorda County, Providence Oil Co. has derrick up for No. 1 J. E. Strawbridge, Lot 1, J. W. E. Wallace Survey.

Louisiana Coast

Along the Louisiana coast Tide Water Associated Oil Co. continued to test No. 1 Buras Levee Board, but the results so far have been disappointing. The well is on the Bay Brussel prospect in La Fourche Parish. A 46-minute drill-stem test through perforated casing at 11,290-11,305 ft. recovered 10 lb. of working pressure and salt water with a slight trace of oil. At the close of the week, another test was being made at 11,270-80 ft.

Texas Co.'s No. 1 Vermilion Parish School Board, a prospective pool opener on the Erath prospect, Vermilion Parish, is preparing to sidetrack at a plugged-back depth of 10,250 ft., the company failed to clean up a fishing job at a total depth of 10,595 ft. The well is reported to have logged about 60 ft. of sand showing distillate. Royalty in the area is reported to be selling from $250 to $300 per acre base.

Plymouth Oil Co.'s No. 1 McHugh, Bayou Pigeon prospect, Iberia Parish, is reaming at a total depth of 8,655 ft. Drill-stem testing in three horizons recovered pipe-line oil which practically assures the well of opening a pool.

The newly opened Happytown field, Iberville Parish, received its second location as Shell Oil Co., Inc., staked location for No. 1 Schwing Lumber & Shingle Co., 2,293 ft. east and 475 ft. north of the southwest corner of Lot 85-7s-8e, which places the well northeast of the discovery well. Shell posted $1 per barrel for oil purchased in the field, effective January 12.

In the West Gueydan field, Vermilion Parish, Magnolia Petroleum Co. is completing No. 4 Ferguson. The hole is bottomed at 7,161 ft., with sand showing oil logged at 7,145-56 ft.

Along the Tertiary Wilcox trend, S. W. Richardson is preparing to spud No. 1 Hillyer-Edwards situated in the Glenmora area, Rapides Parish. It is reported that Humble Oil & Refining Co. purchased a half interest in this block after rechecking the area with geophysical instruments. The well is located in Section 21-1s-3w.

In the Villa Platte field, Evangeline Parish, Danciger Oil & Refining Co.'s No. 1 J. E. Vidrine, Section 1-4s12e, a Tertiary Wilcox test southeast of production, has resumed drilling after making an electrical survey below 9,200 ft. The well is reported to be checking higher than the nearest Wilcox producer in the field proper, and prospect of opening a major extension for the deep pay is considered encouraging. In the field proper Continental Oil Co 's No. 1 Vidrine was completed in the Wilcox sand at 10,193-10,205 ft., for an initial production of 425 bbl. daily, flowing through a ¼-in. choke.

On the Belle Chasse prospect, Plaquemines Parish, California Co. staked location for No. 1 Delta Minerals in Section 2-15s-24e.

In the Grand Lake field, Cameron Parish, Superior Oil Co. is attempting to open production from a new horizon as casing was cemented in No. 6 State, preparatory to testing sand at 8,890-9,962 ft. The sand is several hundred feet lower than the deepest producer.

TEXAS GULF COAST COMPLETIONS IN PROVEN FIELDS

Fort Bend County

Thompson field: H. M. Naylor's No. 4 Hampill, sand 7,908-20 ft., 891 bbl., ¼-in. choke. H. M. Naylor, sand 7,828-39 ft., 877 bbl., ¼-in. choke. J. H. Blaffer Oil Co.'s No. 11 Davis, sand 4,335-54 ft., 480 bbl., ¼-in. choke. Humble Oil & Refining Co.'s No. 19 Davis, sand 5,395-5,410 ft., 483 bbl., ¼-in. choke.

Brazoria County

West Columbia field: Hogg Oil Co.'s No. 8 Hogg, sand 5,460-75 ft., 157 bbl., ¼-in. choke.

Chambers County

Anahuac field: Humble Oil & Refining Co.'s No. 29 W. C. Tyrell, sand 7,029-85 ft., 600 bbl., ¼-in. choke. Turtle Bay field: Stanolind Oil & Gas Co.'s No. 2 Robertson-McDonald, 6,677 ft., dry and abandoned.

Galveston County

Dickinson field: Pure Oil Co.'s No. 1 Dobbie, perforated casing 8,741-51 ft., 125 bbl., 14/64-in. choke. Pure Oil Co.'s No. 5 Stewart, 8,963 ft., dry and abandoned.

Harris County

Clear Lake field: Humble Oil & Refining Co.'s No. 29-C Humble-West, 5,904 ft., 120 bbl., ⅛-in. choke. Friendswood field: Humble Oil & Refining Co.'s No. 2 Moore, sand 6,040-51 ft., 479 bbl., ¼-in. choke. Tomball field: Humble Oil & Refining Co.'s No. 1 Anderson, sand 5,552-68 ft., 152 bbl., ⅛-in. choke.

Jackson County

West Ranch field: Magnolia Petroleum Co.'s No. 38 West, sand 5,120-25 ft., 352 bbl., ¼-in. choke. Magnolia Petroleum Co.'s No. 39-A West, perforated casing 5,130-34 ft., 147 bbl., ⅛-in. choke.

Jefferson County

Lovells Lake field: Shell Oil Co., Inc.'s No. 3 Pleasant, 7,802 ft., 155 bbl., ⅛-in. choke. West Beaumont field: Stanolind Oil & Gas Co.'s No. 11 McCormick, perforated casing 5,871-73 ft., 19 bbl., various chokes.

Liberty County

Hull field: Marrs-McLean's No. 3 Barrow, 5,507 ft., 79 bbl., pumping. South Liberty field: Noble and Baker's No. 4 Welder, sand 3,568-98 ft., 140 bbl., ⅞-in. choke.

Polk County

Segno field: Gulf Oil Corp.'s No. 27 Wing, sand 8,128-60 ft., 256 bbl., ¼-in. choke.

Illinois Fields

(Continued from Page 224)

In Gallatin County Ralph Holbert's No. 1 Osborn, SE SE NE Section 29-28s-10e, moving in rotary tools. D. E. Colebech's No. 1 Egyptian Tie & Timber, SW NW NE Section 19-8s-10e, spudded.

In White County Kingwood Oil Co.'s No. 1 Wilson, NW NW SE Section 6-6s-7e, rotary derrick up. Rheinsmith and others' No. 1 McCarty, NW SW NE Section 7-6s-10e, rotary derrick up.

In McDonough County McCallister Oil Co.'s No. 1 Ira Logan, SE SE NW Section 19-4n-4w, of fourth principal meridian, an old well drilling deeper from 335 ft., had show of oil 426-30 ft., shot with 50 qt., pumped ½ bbl. oil per day and was a completion.

In Lawrence County J. L. Williams' No. 1 Mark Smith, NW NW SW Section 29-5n-12w, pits dug for a rotary test to Devonian.

In Wabash County Mode, Bruce & Lacey's No. 1 Kerreitt, 1,680 ft. east and 300 ft. south lines of SE¼ Section 19-1s-12w, rotary derrick up.

In Marion County Jones' No. 2 D. Hester, SE NE NE Section 21-2n-2e, abandoned location. Inland Drilling Co.'s No. 1 Moser, SW SW NE Section 27-2n-2e, total depth 1,150 ft., dry and abandoned.

Rocky Mountain Area

By
T. R. INGRAM

Interest in Eastern Colorado Centers on Deep Test Plans

DENVER, Colo., Jan. 22.—Cold weather has forced a number of drilling wells in the northern Rocky Mountain area to shut down temporarily.

Eastern Colorado is showing signs of renewed interest and several deep tests are expected to be drilled this year.

The Ohio Oil Co.'s No. 15 Harrison & Cooper extended the proven area of the Rock River field in Wyoming one location to the south when it was completed for 33 bbl. an hour in the Sundance. The Tri-State Oil & Refining Co. completed a 25-bbl. well at 650 ft. in the Simpson Ridge district. Lance Creek had one completion in the Argo Oil Co.'s No. 1 Ong, an outpost on the northwest, which was dry and abandoned. The Sinclair-Wyoming Oil Co.'s No. 89-A in Lost Soldier, pumped 50 bbl. per day, initially.

Cut Bank, in Montana, had one completion, a 70-bbl. well for Wilkinson & Potter in their No. 4 Allocated-127.

Wyoming had eight new operations and Montana only one.

NEW MEXICO

In wildcat territory in northeastern Chaves County and about 3 miles north of Elkins, Farrar-Jones-Cunningham staked No. 1 Samples in SE cor. SE SE Section 1-7-27. Drilling is expected to start early this week.

A new Delaware-sand test in wildcat territory was announced for south central Eddy County. It will be A. S. Everest and Paul Moran's No. 1 Ramuz, C NE NW Section 18-23-26, northwest of the small producers in the Black River area.

South of the High Lonesome pool in northern Eddy County two locations were staked as offsets to Leonard Oil Co.'s recent gas completion. C. S. Powell and J. W. Mathews have located No. 2 Levers, NW NW SW Section 33-16-29, west offset to the gas well. As an offset to the east, Leonard Oil Co. staked No. 1 Levers, NE NE SW Section 33-16-29. The area is about 2½ miles south of the main part of the High Lonesome pool.

SOUTHEAST NEW MEXICO COMPLETIONS

Eddy County

W. H. Berry's No. 7 Berry, SE cor. SE SE Section 23-17-27, was plugged and abandoned at total depth of 520 ft., a wildcat test. A wildcat, R. G. Burke's No. 1 State, SE SE SW Section 36-16-24, temporarily abandoned at 2,450 ft.

In the Loco Hills pool, Carper, Mills & Talmadge's No. 1-A State. NW cor. SE SW Section 32-17-30, flowed 375 bbl. daily through open casing from pay at 2,849-70 ft. Continental Oil Co.'s No. 2-M-2 State, SE cor. SE SE Section 2-18-29, flowed 82 bbl. in 7 hours through ¾-in. choke after shot in pay from 2,664-88 ft. Continental Oil Co.'s No. 1-0-16 State, NE cor. NW NE Section 16-18-29, flowed 72 bbl. in 10 hours through 15/64-in. choke from pay from 2,507-2,655 ft. R. W. Fair's No. 2 Watson-Smith, NW SW NE Section 4-18-29, flowed 100 bbl. in 5 hours through open tubing after shot in pay from 2,550-60 ft. Franklin Petroleum Co.'s No. 2 Coppedge, NW cor. NW NW Section 5-18-30, flowed 100 bbl. in 5 hours through open casing after shot in pay from 2,848-60 ft. Kersey & Co.'s No. 1 Creek, NW cor. NE NW Section 23-18-30, flowed 100 bbl. in 8 hours through open tubing after shot in pay from 3,264-81 ft., (official completion).

In the Artesia field, R. J. Johnston's No. 1 Travis, Section 26-17-27, temporarily abandoned at total depth of 561 ft. Welch & Welch's No. 2 State, Section 20-17-28, flowed 60 bbl. daily through open casing from pay from 1,904-60 ft.

Lea County

In the Maljamar pool, R. W. Fair's No. 1-B Baish, Section 22-17-32, flowed 200 bbl. in 8 hours through open casing after shot in pay from 3,953-4,015 ft. In the Hardy pool, Magnolia Petroleum Co.'s No. 2 Brunson-Argo, C SW NE Section 9-22-37, flowed 48 bbl. in 5 hours through open tubing after shot in pay from 3,618-3,740 ft. Rodman Supply Co.'s No. 2 Hardison, SW cor. NW NE Section 34-21-37, flowed 110 bbl. in 11 hours through ¼-in. tubing choke after acid in pay from 3,705-49 ft.

In the Cooper sand pool, Skelly Oil Co.'s No. 2 Sherrell, NE NE SE Section 31-24-37, flowed 97 bbl. in 12 hours through 23/64-in. choke, natural, from pay drilled from 3,500-35 ft.

In the Skelly pool, Skelly Oil Co.'s No. 7 H. O. Sims, NE NW Section 3-23-37, flowed 190 bbl. in 15 hours through 20/64-in. choke from pay drilled from 3,495-3,637 ft.

NORTHWEST NEW MEXICO

Bernalillo County

Norins Realty Co., Inc.'s No. 2 North Albuquerque, NE SE NW Sec. 19-11n-4e. Drlg. 4,775 ft.

San Juan County

Continental Oil Co.'s No. 100 Rattlesnake, SE NW NE Sec. 2-29n-19w. Drlg. 7,271 ft.

COLORADO

El Paso County

F. F. Hintze et al's No. 1 State, CEL SE SE Sec. 16-11s-60w. T.D. 855 ft.; fsg.

Huerfano County

I. E. Sideman-White et al's No. 1 Martinez, C SW NE Sec. 33-36s-67w. Bldg. rig.
Harold F. Collins et al's No. 1 Bartlett-Howard, SE NW Sec. 3-28s-68w. S.D. 468 ft.; acct. weather.

La Plata County

Nick Spatter's No. 1-X Bryce, C SW SW Sec. 31-33n-9w. T.D. 2,602 ft. in coal bed; U.R. 5-in. for W.S.O.

Park County

South Park Oil Co.'s No. 1 Lemar, NE NE SE Sec. 34-11s-75w. Drlg. 7,156 ft.

Moffat County

Great Divide Pet. Co.'s No. 1 Wyatt, SE¼ Sec. 6-9n-92w. S.D. 724 ft.; 10-in. frozen at 650 ft.; will res. as soon as weather cond. improve.

Routt County

L. C. Craig-E. L. Moore's No. 1-X Erwin, C SW NE Sec. 33-7n-85w. T.D. 2,220 ft.; trying to recmt. 6⅝-in. at 2,055 ft.

Washington County

Thurman Oil, Tr.'s No. 1 Ruby, NW NW SW Sec. 3-5s-52w. Drlg. blue sh. at 1,170 ft.

WYOMING

Big Horn County

Frank S. Scott's No. 1 Robertson, SE SE SE Sec. 6-54n-93w. S.D. 650 ft.; acct. weather.
Mule Creek Oil Co.'s No. 1 Binney-Sessions, SW NW NW Sec. 34-56n-97w. T.D. 4,155 ft.; prep. to test.
Yale Oil Corp.'s No. 1 Simonson, Lot 53, Sec. 34-55n-97w. Drlg. 673 ft.; 15½-in. cmtd. at 80 ft.

Carbon County

Tri-State O. & R. Co.'s No. 17, NW SE NW Sec. 20-21n-80w. Drlg. 184 ft.; (first report).
Sinclair-Wyoming Oil Co.'s No. 4-E, C SE SW Sec. 29-26n-87w. Drlg. 3,270 ft.
Albert Dev. Synd.'s No. 1 Boeke, SW NW Sec. 18-25n-79w. S.D.O. 922 ft., in grnt.

Converse County

Shawnee Expl. Co.'s No. 1 Salisbury, SE SW NE Sec. 27-32n-69w. B.R. and M.I.M.

Fremont County

Lincoln O. & G. Co.'s No. 8 Tribal, CEL NE SW Sec. 23-1s-1e. T.D. 467 ft.; recond. to D.D.
Lincoln O. & G. Co.'s No. 7 Tribal, SE NE SW Sec. 23-1s-1e. S.D. 424 ft., temp.; (first report).
Consolidated Oil Properties, Inc.'s No. 3 Ewart, C SW SE Sec. 16-1n-1w. S.D. 1,530 ft.
F. F. Hintze's No. 1 Jones, CWL NW NW Sec. 7-28n-92w. T.D. 1,117 ft.; est. 10,000,000 cu. ft. gas in second Frontier; S.D.

Hot Springs County

Oscar B. Grace's No. 5 Govt., Lot 3, SE NW Sec. 21-43n-92w. Spdg. 15 ft.; Kirby Creek dist.; (first report).
John W. Selby's No. 1 Kyne, SW NW Sec. 22-43n-92w. S.D. 732 ft.; weather.
J. W. Bales' No. 1 Govt., CWL NW SE Sec. 21-42n-90w. T.D. 762 (C.D.) ft.; cmtd. 12½-in. on bttm. to S.O.W. in Muddy sd. at 702-20 ft.

Lincoln County

H. C. Harris' No. 1 Govt., SE NW NW Sec. 23-21n-117w. Drlg. L. 2,612 ft.
Fontenelle Dev. Co.'s No. 1 Pomroy, NE SW Sec. 5-24n-113w. M.I. Fort Worth spudder; Fontenelle dist.; (first report).

Natrona County

Continental Oil Co.'s No. 1 McGrath, C NW SW Sec. 15-34n-78w. T.D. 7,331 ft.; bailed ¾ B.O. and ¾ B.W. per hr. after perf. with 50 additional holes at 5,629-85 ft.; S.D. for winter.
General Pet. Corp.'s No. 1-21-G, NW NW NW Sec. 21-35n-77w. Drlg. sh. 5,550 ft.

Niobrara County

Argo Oil Co.'s No. 8 Ford, SE NE NW Sec. 33-36n-65w. Drlg. 1,300 ft.; cmtd. 13-in. at 340 ft.; (first report).
Argo Oil Co.'s No. 12-A Elliott, SE NW NE Sec. 7-35n-65w. Drlg. 3,383 ft.
Minnelusa Oil Corp.'s No. 4 H. & M., NE NE SE Sec. 7-35n-65w. S.D. 822 ft. for wtr.; cmtd. 13-in. 300 ft.
Minnelusa Oil Corp.'s No. 1-B Joss, NE SW NW Sec. 7-35n-65w. T.D. 4,819 ft.; fsg. D.P.
A. B. Cobb's No. 5 Novick, NE NE NW Sec. 6-35n-65w. Drlg. 5,442 ft.
Ohio Oil Co.'s No. 4 Cash-1, NW NE SW Sec. 4-35n-65w. Drlg. 4,593 ft.
Ohio Oil Co.'s No. 6 Rohlff, SE NW NE Sec. 32-36n-65w. Drlg. 1,795 ft.
Continental Oil Co.'s No. 5 Apex-O.P.C.-2, NW NW SE Sec. 34-36n-65w. Drlg. 5,147 ft.; T. Converse sd. 4,830 ft.
Continental Oil Co.'s No. 17 Tom Bell, SE SE NE Sec. 33-36n-65w. Drlg. r.b. 4,732 ft.
Continental Oil Co.'s No. 6 Sam Joss, NW NW NE Sec. 6-35n-65w. T.D. 5,308 ft.; cmtd. 7-in. at 5,258 ft.; prep. to acd.
Continental Oil Co.'s No. 3 Rodeo-4, SE NE NE Sec. 35-36n-65w. Drlg. 4,044 ft.
H. D. Moore's No. 1 Berggren, SE NW Sec. 23-35n-63w. Drlg. 2,526 ft.

Sublette County

California Oil Co.'s No. 1 Unit 1, C SW NE Sec. 14-31n-109w. T.D. 10,003 ft.; tstg.
Marvel Oil Co.'s No. 1, NE NE SE Sec. 28-27n-113w. T.D. 1,040 ft.; W.O. P.L. connection.
North La Barge Oil Co.'s No. 1 Govt., SW NE SE Sec. 8-27n-113w. S.D. 1,377 ft., for repairs; 10¾-in. on bttm.
Wyo. Pet. Corp.'s No. 1 Chas. Budd, C NE NE Sec. 10-29n-113w. T.D. 3,054 ft.; will P.B. and comp. as gas well.
Yellowstone Oil Co.'s No. 1 Budd, SW SE SE Sec. 6-30n-112w. T.D. 1,030 ft.; prep. to U.R. 10-in. from 900 ft. to bttm.

Sweetwater County

Vermillion Oil Co.'s No. 2 Govt., SW SW SW Sec. 7-12n-99w. Drlg. 2,516 ft.; dry sd. at 2,475-2,500 ft.
Sinclair-Wyoming Oil Co.'s No. 90-A, SW SW NW Sec. 11-26n-90w. Drlg. 1,080 ft.

Uinta County

Stove Creek Oil Co.'s No. 1 Govt., NE SW NE Sec. 26-14n-119w. S.D. 2,410 ft., in sh.
Meridian Oil Co.'s No. 1, NW NW NE Sec. 26-13n-119w. Drlg. 800 ft.; Evanston dist.; (first report).
Spring Valley Pet. Co.'s No. 13, CSL SE SE Sec. 22-15n-117w. Drlg. 1,850 ft.

Weston County

Bruce C. Teeter's No. 1 State, C SW NE Sec. 36-42n 61w. T.D. 2,287 ft.; set whpstk. and drlg. by.
Gose Oil Synd.'s No. 1, NE NE NE Sec. 28-47n-63w. Drlg. 4,950 ft.
F. J. Diiger, Tr.'s No. 17, SW NW SW Sec. 30-46n-63w. Drlg. below 300 ft.; (first report).
Chas. F. Marten's No. 21, NW NE NE Sec. 19-46n-63w. Shot sd. at 1,270-79 ft.; C.O.
Osage Trust Co.'s No. 6 McCullough, SW NE SW Sec. 33-46n-64w. Drlg. below 1,200 ft.

MONTANA

Big Horn County

Dr. Crosby's No. 1 Pat., SE SE NE Sec. 16-1s-13e. S.D. temp., 1,000 ft.; Toluca dist.; (first report).

Carbon County

Henderson Prod. Co.'s No. 3 Woods, SW SE NE Sec. 35-9s-23e. M.I.M.; Elk Basin field; (first report).
Miracle Oil Co.'s No. 2 Govt., CWL NE SE Sec. 3-6s-23e. T.D. 2,338 ft.; C.O. at 1,590 ft.; to res.
Ohio Oil Co.'s No. 9 Souders, C NE SW Sec. 2-7s-21e. T.D. 5,511 ft.; pmpg. in attempt to exhaust wtr.
R. C. Tarrant's No. 2 McKay, C SE NW Sec. 4-6s-18e. T.D. 2,625 ft.; (C.D.); tools rec.; prep. res.

Choteau County

Security Pet. Corp.'s No. 1 Johnson, C NE NE Sec. 23-26n-3e. S.D. 2,091 ft. to fill in lease blk.

Glacier County

Santa Rita O. & G. Co.'s No. 4 Lander, C SE SW Sec. 16-35n-6w. Spdg. 125 ft.
R. C. Jeffries' No. 1 Exchange Oil Co., C NW NW Sec. 34-35n-6w. Drlg. 500 ft.

Helmac Tr.'s No. 3 Govt., Lot 3, Sec. 32-33n-5w. R.O.G.
Glacier Prod. Co.'s No. 6 State, CWL NW¼ Sec. 16-33n-5w. Spdg. 225 ft.
Glacier Prod. Co.'s No. 3 Scheuren, C SW SE Sec. 20-33n-5w. Drlg. 450 ft.
Glacier Prod. Co.'s No. 2 Lookhoff, C NW NE Sec. 33-33n-5w. Drlg. 1,485 ft.; Colo. 615 ft.; 10¾-in. cmtd. 630 ft.
Santa Rita O. & G. Co.'s No. 2 Rasmussen, NE SW SW Sec. 32-33n-5w. Drlg. 840 ft.; Colo. 415 ft.; 10¾-in. cmtd. at 438 ft.
A. B. Cobb's No. 1 Osuri, C SW NW Sec. 30-37n-4w. R.O.G.
Cobb-Reagan's No. 4 Jackson, SW SW SE Sec. 5-32n-6w. R.U.R.

Hill County

J. Gudgel's No. 1 Federal Ld. Bnk., C SE SW Sec. 19-33n-15e. Drlg. 300 ft.

Petroleum County

Watson Oil Co.'s No. 1 Austed, SW NW SE Sec. 22-13n-28e. Drlg. 1,330 ft.; 10-in. cmtd. 1,267 ft.

Toole County

Big West Oil Co.'s No. 16 Dahlquist, SW NW NE Sec. 28-35n-3w. Spdg. 60 ft.; (first report).
Coolidge & Coolidge's No. 2 McCurdy, NE NW NW Sec. 11-35n-3w. Drlg. 880 ft.
Casper T. Olen's No. 9 Engemoen, NW NE NW Sec. 14-35n-2w. S.D. 70 ft.
L. J. Yealy's No. 14 Shaw, NW SW NE Sec. 35-36n-2w. R.O.G.
Lemac Oil Co.'s No. 1, C NE NE Sec. 27-36n-2w. Drlg. 1,570 ft.; 1,000,000 cu. ft. gas in Colo. at 1,208 ft.
Frazier & Smith's No. 2 Van Note, NE SW NW Sec. 30-35n-2e. S.D. 1,380 ft.
Coolidge & Coolidge's No. 1 Maley, SW NE SE Sec. 31-36n-1w. S.D. 100 ft.
W. E. Rice Co.'s No. 4 Kearns, Lse. 8, C W½ E½ SE Sec. 18-35n-2w. T.D. 1,570 ft.; rng. 6⅝-in.
C. L. Smith, Agt.'s No. 1 Govt., SW SE NW Sec. 13-35n-2w. S.D. 1,345 ft.; fish. rec.
Morton & Shaw's No. 2 Ellingson, SE NE NW Sec. 23-35n-3w. T.D. 750 ft.; repairing mch.
Superior Pet. Co.'s No. 3 Haugen, C NE NE Sec. 11-35n-3w. S.D. 864 ft.; repairs.
A. Beardslee's No. 12 Swears, CSL SE NW Sec. 9-35n-2w. T.D. 1,650 ft.; cont. 1,640-46 ft.; S.O.; cmtd. 7-in. at 1,636 ft.; will acd.

Yellowstone County

Calitana Oil Co.'s No. 1 Stallinberger, NE NE SW Sec. 18-3n-23e. T.D. 5,129 ft.; C.O. and prep. to run 7-in.

UTAH

Grand County

Reeder Corp.'s No. 1 State, NE NE NE Sec. 16-22s-19e. Spdg. 40 ft.; (first report).
Big Six Oil Co.'s No. 1 Govt., SE¼ Sec. 23-22s-19e. S.D. 525 ft. on top Dak., for repairs.
Cane Creek Oil Co.'s No. 2 Shaffer, NW SW SW Sec. 31-26s-21e. T.D. 3,360 ft.; S.D. to exchange permits for leases.

Daggett County

Mountain Fuel Supply Co.'s No. 4 Murphy, SW SE SW Sec. 21-3n-24e. S.D. 5,643 ft. for winter; cmtd. 6⅝-in. on T. Dak. at 5,640 ft.; tstd. 5,000,000 cu. ft. gas from top of sd.

Summit County

Longwell Pet. Co.'s No. 1, SE SW SE Sec. 35-3n-5e. Drlg. 3,256 ft., in sd.; S.O.

SOUTH DAKOTA

Harding County

South Dakota State Roy. Co.'s No. 1 State, SW NW Sec. 35-18-1e. Drlg. 7,545 ft.; will go to granite.

Butte County

Two Top O. & G. Co.'s No. 2, SE NE Sec. 30-10n-6e. T.D. 1,090 ft., in T. Frontier; prep. to core.

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Southwest Texas District

By
F. L. SINGLETON

New Producing Area in Duval County; Prospect in Atascosa

CORPUS CHRISTI, Tex., Jan. 22.—Discovery of a new producing area, flanking the east side of the Peters field, Duval County, and testing of a probable pool opener in Atascosa County along the Balcones fault-line district, were the highlights of development in the Southwest Texas district the past week.

G. G. Mortimer's No. 3-B Peters, approximately 2 miles east of Mirando-sand production in the Peters field, was completed through perforated casing at 2,460-62 ft., and the well is jetting an estimated 8 bbl. of 24-gravity oil per hour through a ½-in. choke. The sand section, tentatively identified as the Argo sand, was cored at 2,457-67 ft., and casing was cemented for completion following a 25-minute drill-stem test which recovered several hundred feet of oil. Location is in Survey 196.

The newly opened Tarancahuas field, in Duval County, received its second producer as Cox & Hamon and others completed No. 1 Charles Hoffman for an initial production of 70 bbl. of oil in 15 hours, jetting with gas through a ⅝-in. choke. Sand was cored at 2,024-33 ft., the total depth, and 5½-in. casing was cemented at 2,024 ft. The well is in the B.S.&F. Survey, 660 ft. southeast of the discovery well.

Approximately 5 miles northwest of the Driscoll field, Duval County, Continental Oil Co.'s No. 1-C Clara Driscoll was abandoned at a total depth of 3,748 ft., after the well tested salt water through perforated casing at 2,320-26 ft. Casing was cemented last week after an electrical survey showed possible production in sand at 2,320-26 ft. In the east half of the county the same company's No. 1 Clara Driscoll, 6 miles northwest of the Fitzsimmons field, was abandoned at 4,514 ft. with no showings reported.

In the same county and located midway between the Sweden and Benavides fields, Hiawatha Oil & Gas Co.'s No. 1-A Herberger was attracting attention as two drill-stem tests showed promise of distillate production. A 12-minute drill-stem test at 5,852-57 ft. recovered 25 ft. of distillate and mud, and 800 lb. of working pressure. Another 18-minute test at 5,857-63 ft. recovered 30 ft. of distillate and working pressure built up to 975 lb. In the Longhorn field Hiawatha Oil & Gas Co.'s No. 6 Denman, a deep test for the field, is bottomed at 5,992 ft., and 7-in. casing was cemented at 4,142 ft. to test 8 ft. of sand logged by an electrical survey at 3,850 ft.

In Jim Hogg County, approximately ½ mile northeast of the discovery well of the Guiterrez field, W. L. Goldston's No. 2 Guiterrez is shut down and may be abandoned at a total depth of 3,855 ft. A 27-minute drill-stem test at 3,236-49 ft. tested 30 ft. of drilling mud and no working pressure.

Locations for two more Tertiary Wilcox tests were made in Live Oak and Bee counties. Approximately 2½ miles northwest of George West, Live Oak County, E. M. Jones is reported to be moving in for a deep test located on the West lease, Lot 400, Block B, of the West subdivision. A large rotary, capable of drilling to 12,000 ft., is being moved to the location. This operator drilled a deep test on the Ezzell ranch several years ago and the showings encountered below the normal producing depth along this particular trend were encouraging. In Bee County and located in the West Tuleta field, Mills Bennett Production Co. and Anderson-Prichard Oil Corp. staked location for No. 2 D. E. Robinson in Section 6, Uranga grant. The location is about 950 ft. northeast of the companies' No. 1 Robinson, which logged encouraging showings in the Wilcox, but due to mechanical trouble caused by excessive gas pressure no production test was ever made. The well is testing the Pettus sand at 3,890-3,915 ft., and at the end of the week it was swabbing wash water with a slight oil odor.

Humble Oil & Refining Co. continues to expand production in the Kelsey field, which now extends into Jim Hogg, Brooks, and Starr counties. The company completed No. 44 McGill as the second producer in the Starr County side. Sand was logged at 4,505-17 ft., and the well flowed 92 bbl. daily through a 7/64-in. choke.

In the Colorado field three oil wells were completed. Humble Oil & Refining Co.'s No. 7 Atwood had sand at 3,082-86 ft., and an initial production of 79 bbl. daily, flowing through a 4/64-in. choke. Colorado-Octane Co.'s No. 1-C Trevino flowed 154 bbl. daily through a ¼-in. choke from sand at 3,052-68 ft., while Great State Oil Co.'s No. 2 Trevino flowed 125 bbl. daily through a ¼-in. choke from sand at 3,038-48 ft.

In Starr County, midway between the Kelsey and Sun fields, Sun Oil Co.'s No. 1 Rodriguez was reaming at a total depth of 4,876 ft. This well has shown indications of joining production of the two pools. A 20-minute drill-stem test at 4,582-4,601 ft. tested 80 ft. of gas-cut drilling mud and 185 lb. of working pressure.

In Jim Wells County Henshaw Brothers' No. 1 San Miguel, 1 mile northeast of the Premont field, cored gas sand at 3,137-95 ft. and at 3,309-15 ft., and is drilling in shale below 4,610 ft. Location for a 6,500-ft. wildcat was made 6 miles west of Orange Grove by R. K. Taylor and others for No. 1 M. H. Reed, J. Poitevent Survey, Section 109.

Coronado Corp.'s No. 1 K. L. Welder, in the Seadrift area, Calhoun County, was being watched with interest as a series of production tests were being made. The well has been drilled "tight" and the following information is subject to correction. Total depth of the well is given as 10,002 ft., with 5¾-in. casing cemented at 9,750 ft. Oil sand is reported to have been cored at 5,660-80 ft.; and another sand, showing oil, is reported at 8,260 ft. Sand with a distillate odor was logged at 8,900-8,960 ft. Drill-stem testing through perforated casing at 9,600-9,700 ft., and 9,500 ft., tested salt water.

In the McAllen area, Hidalgo County, McCollum Oil Co. and Pantano Petroleum Co. are slated to drill a deep test near the town of McAllen in the near future. Leases are being acquired and the first of two proposed 10,000-ft. tests will be started after approximately 3,600 acres are under lease.

Additional drilling activity was reported to the Victoria field, Victoria County. Loma Oil Co. is rigging up No. 1 Guschlier, J. H. Sewall is preparing to spud No. 1 J. H. Fox, while Staley & Sims have rigged up No. 1 Louisa Vogt. George Greer's No. 1 R. King is bottomed at 2,751 ft., and 7-in. casing is being cemented to complete as a gas well. Gas sand was cored at 2,534-38 ft., and a drill-stem test at 2,540-55 ft. tested 750 lb. of working pressure.

Along the Balcones fault-line district Red Bank Oil Co. and Casray Oil Corp.'s No. 1 J. P. Pratt, 1 mile west of the town of Anchorage, Atascosa County, was the center of interest as casing was cemented for a production test after a 39-ft. sand and sandy shale section, showing oil, was logged at 2,347-86 ft. Sand showing oil was cored at 2,347-60 ft., and shaly sand and sandy shale with an oil odor at 2,360-86 ft. Location is in the Francisco de la Garza Survey.

A large producer from the chalk formation was reported for the Pearsall field, Frio County, as Texas Atlas Petroleum Corp.'s No. 1 T. G. Williams flowed 912 bbl. of 28.3-gravity oil daily through a 1-in. choke under a working pressure of 50 lb. The hole is bottomed in the Austin chalk, topped at 5,410 ft., and 7-in. casing was cemented at 5,425 ft.

Southeast of the Zoboroski field, Guadalupe County, Wellington Oil Co.'s No. 1 C. M. Wells; H.&T.C. Survey, Section 5, topped the Austin chalk at 3,397 ft., and the base of the chalk was logged at 3,568 ft. The Buda lime was topped at 3,585 ft., Del Rio lime at 3,640 ft., Georgetown lime at 3,680 ft., and the well is coring for the Edwards lime below 3,723 ft. No showings of oil or gas have been reported.

In the same county, in the New Elm field, E. A. Weyel and others' No. 1 Thomas is being rigged up to pump at a total depth of 793 ft. with 500 ft. of oil in the hole.

SOUTHWEST TEXAS COMPLETIONS IN PROVEN FIELDS

Aransas-San Patricio Counties

McCampbell field: Abbott & Traxler's No. 2 Harris, perforated casing 7,322-33 ft., 151 bbl., 9/64-in. choke. Bay-Tex Oil Corp.'s No. 1 Rumley-Flowers, perforated casing 7,147-49 ft., 121 bbl., 4/64-in. choke. Texas Atlas Corp.'s No. 1-B Conn Brown, perforated casing 7,116-22 ft., 92 bbl., 4/64-in. choke.

Calhoun-Victoria Counties

Gulf Oil Corp.'s No. 25-B Traylor, sand 5,494-97 ft., 176 bbl., ⅛-in. choke.

Duval County

Benavides field: Hiawatha Oil & Gas Co.'s No. 22 Southland Life Insurance Co., 6,005 ft., dry and abandoned. Hoffman field: Magnolia Petroleum Co.'s No. 5 Weil, 2,873 ft., dry and abandoned.

Guadalupe County

Darst Creek field: Magnolia Petroleum Co.'s No. 11 Miller, sand 2,601-47 ft., 24 bbl. oil, 180 bbl. water.

Jim Hogg County

Colorado field: Humble Oil & Refining Co.'s No. 7 Atwood, 3,069 ft., 115 bbl., 7/32-in. choke. Kelsey field: Humble Oil & Refining Co.'s No. 41 McGill Brothers, 4,737 ft., 139 bbl., 9/64-in. choke.

Jim Wells County

La Gloria field: Magnolia Petroleum Co.'s No. 1 C. C. Hornsby, perforated casing 6,085-91 ft., 40 bbl., 4/64-in. choke. Magnolia City field: V. J. Meyer and Simmons' No. 2 Reynolds & Richardson, perforated casing 5,697-5,703 ft., 106 bbl., ⅛-in. choke.

Live Oak County

Oakville field: Simmons Oil Co.'s No. 12-B McGriff, 1,836½ ft., 151 bbl., 4/64-in. choke.

McMullen County

Munson field: Graham Brothers Oil Co.'s No. 13 Nueces Land & Livestock Co., 1,223½ ft., dry and abandoned.

Nueces County

Agua Dulce field: Union Producing Co.'s No. 4 Sponberg, 5,248 ft., gas well. Richard King field: Southern Minerals Corp.'s No. 13-B King, perforated casing 5,226-33 ft., and 5,262-67 ft., 49 bbl., 4/64-in. choke.

San Patricio County

Plymouth field: Easterwood Production Co.'s No. 4 Cryer, perforated casing 5,660-70 ft., 121 bbl., 10 per cent water, pumping.

Starr County

Charco Blanco field: Bishop, Owen, and others' No. 1 F. W. Seabury, 1,264 ft., dry and abandoned. Rincon

(Continued on Page 240)

North and East Texas

By D. H. STORMONT

New Pool Opening Indicated Southwestern Clay County

WICHITA FALLS, Tex., Jan. 22.—The beginning of testing procedures at Continental Oil Co. and others' No. 1 Brown, deepest wildcat in North Texas and north of Bowie in Montague County, together with continued testing at Shell Oil Co., Inc.'s indicated new pool opener in extreme southwestern Clay County, provided the highlights of an eventful week in North Texas.

Five miles north of Bowie and in Montague County Continental Oil Co. and associates' No. 1 Junia Brown, G. E. Nabours Survey, Abstract 1416, the deepest test ever drilled in North Texas and currently reported 45 ft. into the Ellenburger lime, was shut down and preparing to test. Bottomed at 7,333 ft., it drilled 448 ft. of Simpson formation topped, tentatively, at 6,840 ft. and encountered the Ellenburger section at 7,288 ft. Hard formation was drilled from 7,290 ft. to 7,319 ft., where a softening of the lime was found. Last core at the bottom is reported to have shown 4 ft. of fairly hard lime with a slight odor of oil. After electrical survey was made, operators announced liner would be run from 6,943 to 7,333 ft. for a test.

In the Benton & Holmes pool in Montague County, United Producers and Continental Oil Co.'s No. 1-A Custers, James McKnight Survey, Abstract 480, is indicating one of the best producers in the pool after drilling a thicker section of granite wash pay than other producers. Saturated granite wash was drilled from 3,735 to 3,766 ft., where shale was found. The shale was believed to mark the bottom of the granite wash pay, however, after drilling deeper another section of granite wash was found from 3,773 to 3,778 ft., total depth, where drilling was halted for a test.

A new wildcat test for Montague County has been staked by Walter K. Jones, Oklahoma City, as his No. 1 Johnson, Block 5, E.T. Survey, Abstract 230. It will be a 4,500-ft. rotary test and is 4 miles southeast of Montague. Helmerich & Payne, Inc., drilling contractors, are moving in the rig.

Clay County's promising new pool opener, which has been in the testing stages for 3 weeks, has apparently determined the source of its bottom-hole water and was preparing to seal off the stratum and proceed with testing. It is Shell Oil Co., Inc.'s No. 1 Henderson, Block 2605, T.E.&L. Survey, in the extreme southwestern corner of Clay County. After locating the water source an 18-hour bailing test showed 175 bbl. of water and 45 bbl. of oil. Water source was placed at 3,495 ft., just under the casing seat. Three promising sections of saturation were found and the operators plan to test each one.

Archer County reported considerable activity as a new wildcat was started approximately 2 miles east and slightly south of the Sikes area of the Hull-Silk pool. It is Continental Oil Co.'s No. 1-A Wilson, 4,500-ft. rotary test in the west half of Section 20, H.&T.C. Survey. It is being drilled on a 340-acre tract for which Continental paid $17,000 cash and contracted to pay $54,000 out of oil produced.

Half-mile southeast extension for the 4,400-ft. pay of the Hull-Silk pool was seen when Bert Ligon's No. 97 J. H. White, Lot 9, Block 34, A.T.N.C.L. Survey, drilled oil sand from 4,393 to 4,420 ft. and cemented 7-in. casing at 4,393 ft. for completion.

Prospects for production at a wildcat in Foard County rose and fell as Foster Petroleum Co. tested its No. 1 Belle Alle, SE SW Section 314, Block A, H.&T.C. Survey. A 4,500-ft. wildcat, which was in the process of plugging back and testing, is 6 miles northeast of Crowell. After indicating good production from a section at 2,375 to 2,386 ft., the company announced that only salt water was recovered on a test of the stratum and abandonment was probable.

In Jack County and a mile southeast of Jermyn, Harper-Knappenberger and Gillispie's semiwildcat on the Oliver Loving ranch and in the southeast part of Section 2753, T.E.&L. Survey, was reported to have topped the Bryson sand at 3,228 ft. and drilled it to 3,232 ft., total depth. Casing was being cemented for completion.

Cooke County's promising new pool of last month, Big Indian Oil & Development Co.'s No. 1 Morton, southeast part of the E.T.R.R. Survey, Abstract 365, has been abandoned as a failure after testing water through perforations at 2,040-50 ft. It was drilled to a total depth of 2,517 ft. and plugged back for completion attempts.

NORTH TEXAS COMPLETIONS

Archer County

Blackwell Oil & Gas Co.'s No. 5 Wilson Christie, 4,327-53 ft., 1,984 bbl. E. P. Bowen's No. 2 W. H. Portwood C, 1,456 ft., dry. C. B. Christie and others' No. 3 Dr. J. A. Little B, 4,338-84 ft., 1,120 bbl. King Oil Co.'s No. 9 M. E. Rogers A, 1,270-90 ft., 10 bbl. Bert L. Ligon's No. 5 O. T. Anderson, 4,002-12 ft., 1,144 bbl. Bert L. Ligon's No. 3 Dr. J. A. Little B, 4,330-84 ft., 816 bbl. Pace Petroleum Co., Inc.'s No. 29 C. L. Abercrombie B, 978-1,013 ft., 10 bbl. Petroleum Production Co.'s No. 2 S. D. Johnson A, 4,281-4,352 ft., 880 bbl. Rancho Oil Co.'s No. 15 H. O. Prideaux, 689 ft., dry. Sikes and others' No. 3 W. Ford, 4,384-4,422 ft., 960 bbl. Southern Petroleum Exploration, Inc.'s No. 2-S Ray Carson, 1,288-93 ft., 50 bbl. Southern Petroleum Exploration, Inc.'s No. 3-S Ray Carson, 1,293-1,300 ft., 50 bbl. C. H. Staley and others' No. 18 Anna Mangold, 3,770-3,853 ft., 568 bbl.

Baylor County

British American Oil Producing Co.'s No. 2 Mrs. R. E. Fowlkes, 2,532-42 ft., 1,086 bbl.

Clay County

Gorman & McCullouch's No. 8 T. P. Duncan, 1,215 ft., dry. Ted A. Norwood and others' No. 1 C. T. Taylor estate, 1,300 ft., dry.

Cooke County

Big Indian Oil & Development Co.'s No. 1 M. P. Morton, 2,517 ft., dry. King Oil Co.'s No. 5 Joseph Weisman, 799 ft., dry. C. C. Lunch and others' No. 1 A. Hellman, 1,203 ft., dry. Pace Petroleum Co.'s No. 2 J. Paulter, 1,443 ft., dry. P. J. Sharron's No. 1 P. Streng, 2,007 ft., dry. Sinclair Prairie's No. 17 J. M. Best, 4,980-5,004 ft., 496 bbl. Whitfield, Pearson & Grimes' No. 1 H. Sicking, 1,955 ft., dry.

Jack County

B. Fleeger's No. 2 G. E. Winn and others, 3,090-3,192 ft., 400 bbl. G. E. Weber's No. 8 J. M. Bloodworth, 300 ft., dry.

Wichita County

Bell Oil & Gas Co.'s No. 9 Mollis and J. B. Evans B, 1,300-62 ft., 20 bbl. G. W. Cooper's No. 50 J. L. and T. J. Waggoner, 3,745-75 ft., 720 bbl. EC Oil Co.'s No. 21 Mrs. Anna Mangold, 3,771-3,855 ft., 680 bbl. J. E. Farrell's No. 19 J. L. and T. J. Waggoner A, 3,797-3,840 ft., 960 bbl. Lawsonia, Inc.'s No. 1 W. T. Waggoner AA, 1,660 ft., dry. Tide Water and others' No. 13 W. P. Ferguson, 3,761-3,860 ft., 560 bbl. Underwood Oil Co.'s No. 5 W. P. Rogers, 1,197-1,208 ft., 125 bbl. Underwood Oil Co.'s No. 6 W. P. Rogers, 1,200-13 ft., 50 bbl. Underwood Oil Co.'s No. 7 W. P. Rogers, 1,482 ft., dry.

Wilbarger County

Hammon and others' No. 1 T. D. Owens, 3,177-90 ft., 977 bbl. Lido Oil Co.'s No. 23 W. T. Waggoner C, 2,474-2,501 ft., 55 bbl. T. B. Medders' No. 5 Waggoner estate, abandoned location. J. A. Woods' No. 5 Mrs. M. L. Womack, 3,747-98 ft., 1,248 bbl.

Young County

Cosden Petroleum Corp.'s No. 1 S. Raley, 2,876-86 ft., 3,500,000 cu. ft. of gas. L. A. Long's No. 1 King C, 3,905-35 ft., 521 bbl. Panhandle Refining Co.'s No. 3 Mrs. E. Taylor, 2,758-2,829 ft., 30 bbl. E. W. Robitaille's No. 2 J. C. Vaughn A, 3,871-4,022 ft., 513 bbl. E. D. Willis' No. 8 G. Stewart B, 808-35 ft., 60 bbl.

EASTERN TEXAS

DALLAS, Tex., Jan. 22.—In spite of near zero weather in eastern Texas, field activity reached one of its highest points in months. One of the most active fields is the Grapeland gas field in extreme northern Houston County. Discovered some 2 years ago, little development was given it until the past summer when several lease exchanges were reported and were followed by several locations.

Four locations were reported for the Grapeland field during the past week to bring the total of locations and drilling wells to eight. Only 2 weeks ago Lone Star Gas Co. and Trinity Gas Co. completed three large gas wells, bringing the total producers to 10 gas wells and one large gas-oil ratio oil well. The four new locations this week were American Liberty Oil Co.'s No. 1 J. W. Collins, No. 1 G. L. Streetman, and No. 1 G. L. Tyler and Lone Star Gas Co.'s No. 1 Dorsey.

Cook Drilling Co., Tyler, and John G. Mayo, Houston, have for several years been attempting to find oil production on the northern flank of the large structure, but to no avail. Five deep dry holes have been drilled in both northern Houston and southern Anderson counties.

Still unrevealed are the proposed plans for two and possibly three new recycling plants. During the past 6 months Lone Star, Grapeland Oil Co., Trinity Gas Co., and even Cities Service Oil Co., have been rumored preparing to construct plants for this gas and distillate field. With the completion of new wells almost weekly, definite plans regarding the plants are expected to be released soon.

East Texas Field

Work in the East Texas field showed a decided upturn, there being seven new oil wells completed and 13 locations. The completions were unequally divided between Gregg County and Rusk County, there being six in the former and one in the latter. The new locations were listed in all of the counties in which production is found, there being seven in Gregg County, four in Rusk County, one in Smith County, and one in Cherokee County. The Cherokee County location is to be used as a salt water disposal well. The refinery situation in the East Texas field entered the fourth week of the new year unchanged, but with several plants supplying stills from storage. Temperatures froze cooling towers and water lines, forcing several refineries to shut down.

Deep Activity

Eastern Texas' deep activity continued little changed with the exception of a show of distillate at Sun Oil Co.'s south outpost to the Chapel Hill discovery well in Smith County. Sun's No. 1 Campbell, P. Lively Survey, 2 miles south of Hunt Oil Co.'s discovery well, recovered a core from 5,703 to 5,723 ft. which showed fine-grained sand well saturated with gas and distillate. After two attempts at drill-stem tests failed because seat slipped away and tool fell to bottom, the

test was cored deeper. It was last reported at 5,728 ft. and shut down to repair a broken mud hose.

In Limestone County Murray Samuell and Zephyr Oil Co.'s No. 2 Barron, second well in the Groesbeck gas area, was last reported drilling below 4,800 ft. toward the 5,000-ft. gas and distillate pay.

EAST CENTRAL TEXAS COMPLETIONS

(24-hour gages)

Anderson County

In the Long Lake field, Carter-Gragg Oil Co.'s No. 1 Standard Oil Co. of Kansas, S. Sanches Survey, 5,257-59 ft., 74 bbl. In the Cayuga field Tide Water Associated Oil Co.'s No. 2 D. W. Bowyer, M. H. Johns Survey, dry and abandoned at total depth of 4,082 ft.

EAST TEXAS COMPLETIONS

(One-hour gages)

Gregg County—Longview Area

R. H. Hedge's No. 1-A Skipper-Garner, 3,509-13 ft., 40 bbl. Idaho Oil Co.'s No. 2 McGrede, 3,625-36 ft., 47 bbl. Roosth-Genecov Oil Co.'s No. 7 G. W. Richey, 3,562-3,619 ft., 45 bbl.

Gregg County—Kilgore Area

Milford Oil Co.'s No. 6 W. Smith, 3,540-52 ft., 90 bbl. P. F. Rutledge's No. 4 State, 3,580-82 ft., 60 bbl. P. F. Rutledge's No. 5 State, 3,588-90 ft., 40 bbl.

Rusk County—Joiner Area

Hunt Oil Co.'s No. 15-F Bradford, 3,539-3,624 ft., 15 bbl.

Smith County—Joiner Area

A. McCutchin's No. 11 A. S. Jarvis, junked and abandoned at total depth of 3,723 ft.

Southwest Texas Fields

(Continued from Page 238)

field: W. R. Davis, Inc.'s No. 6-B Slick, perforated casing 3,855-74 ft., 119 bbl., ¼-in. choke. Sun field: Sun Oil Co.'s No. 5 Spear, perforated casing 4,896-4,908 ft., 120 bbl., ⅛-in. choke.

Webb County

Adami field: Arkansas Fuel Oil Co.'s No. 2-A Adami, sand 977-986½ ft., 45 bbl., pumping. Arkansas Fuel Oil Co.'s No. 3-A Adami, sand 991-1,001 ft., 46 bbl., pumping. J. McClintock's No. 2 Adami, sand 982-88 ft., 58 bbl., pumping. North Killam field: W. C. Mc Bride's No. 2 Laurel, 2,717 ft., dry and abandoned.

Zapata County

Escobas field: George Buck's No. 6 Trevino-Claggett, sand 1,389-96 ft., 40 bbl., pumping. Mirando Valley field: Interstate Minerals Corp.'s No. 10-C Lopez, perforated casing 1,722-32 ft., 12 bbl. per hour, open tubing.

Victoria County

Victoria field: Trinity Drillers, Inc., and others' No. 2 Voyt, 2,574 ft., dry and abandoned.

Oklahoma Fields

(Continued from Page 229)

In Jackson County, Harper's No. 1 Ronald, SW NE NW Section 5-1s-19w, was moving in rotary tools. Kerbow's No. 1 Dora, SW SW SE Section 11-1n-20w, was a rig. Burnham's No. 4 Guyman, C NW SW Section 14-1n-20w, was moving in rotary tools. Hanna's No. 1 Hardcastle, NW NW SW Section 15-1n-20w, had dug cellar and pits.

In Grady County, Magnolia Petroleum Co.'s No. 10 Harrison, NW NE NE Section 28-3n-5w, was a location.

In the Hobart area, Kiowa County, Gled Oil Co.'s No. 2 Watkins, NW SW NW Section 20-7-17w, north offset to the discovery well, was a cellar. The discovery well, the company's No. 1 Watkins, SW SW NW Section 20-7-17w, was completed at 1,055½ ft., total depth, for an estimated 2,000 bbl. of oil daily, after flowing 861 bbl. of oil in 8 hours, pinched.

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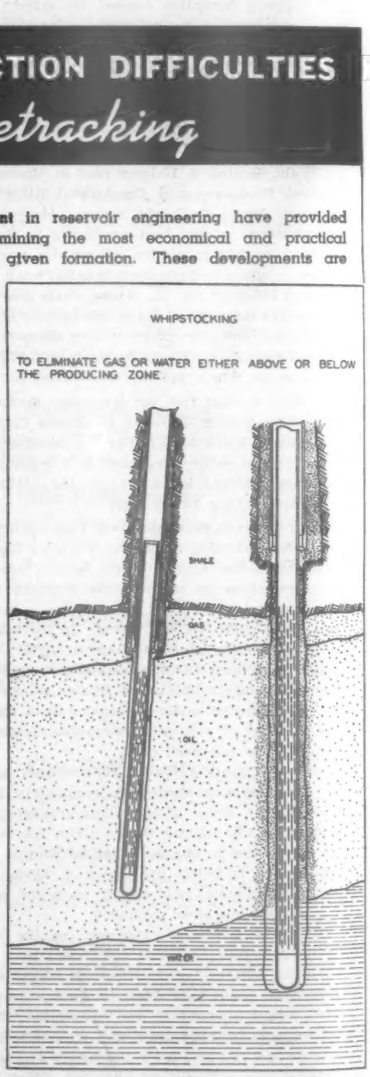

KINZBACH

WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well, location, and county—	S. T. R.	Depth	Status—
Union Oil, No. 1 Russell, Santa Maria, Santa Barb.	20-10-34	3,184	sd. sh. drlg
Union Oil, No. 2-4 O'Donnell, Santa Maria, S. Barb.	29-10-34	4,283	sd. sh. drlg.
Union Oil, No. 2-5 O'Donnell, Santa Maria, S. Barb.	29-10-34	5,640	completing
Colo. F. E., No. 3 Paderewski, Santa Maria, S. Barb.	29-10-34	4,880	sd. sh. drlg.
Hearte, O. K., No. 1 Core, Cuyama, Santa Barbara	11- 9-25	2,902	dry; abd.
Hamilton, W. C., No. 1 Hollister, Goleta, S. Barb.	3- 4-29	854	sd. sh. drlg
Coronet Oil, No. 4 Crown, Ojai, Ventura	17- 4-21	1,056	sd. sh. drlg.
Savage Oil, No. 8 Calumet, Shiells Canyon, Ventura	3- 3-19	3,416	sd. sh. drlg.
Texas Co., No. 138 Shiells, Shiells Canyon, Ventura	4- 3-19	3,083	cleaning out
Continental Oil, No. 13 Grubb, San Miguelito, Vent.	24- 3-24	6,320	sd. sh. drlg.
Continental Oil, No. 14 Grubb, San Miguelito, Vent.	24- 3-24	7,089	flow 1,570 b.d
C. C. M. Oil, No. 10-B Hobson, Rincon, Ventura	8- 3-24	4,521	recmtd. 4,467
C. C. M. Oil, No. 26-B Hobson, Rincon, Ventura	16- 3-24	4,921	O.S. drlg.
C. C. M. Oil, No. 8-A Hobson, Rincon, Ventura	15- 3-24	6,200	hd. sd. drlg.
Tide Water A. O., No. 43 V.L.W., Vent. Ave., Vent.	23- 3-23	6,874	sd. sh. drlg.
Tide Water A. O., No. 45 V.L.W., Vent. Ave., ent.	24- 3-23	4,767	sd. sh. drlg.
Tide Water A. O., No. 16 McGonigle, Vent. Ave., Vent	23- 3-23	9,890	sd. sh. drlg.
Tide Water A. O., No. 120 Lloyd, Vent. Ave., Vent.	27- 3-23	8,598	sd. sh. drlg.
Tide Water A. O., No. 122 Lloyd, Vent. Ave., Vent.	23- 3-23	6,974	sd. sh. drlg.
Tide Water A. O., No. 20 Hartman, Vent. Ave., Vent.	22- 3-23	7,448	testing
Tide Water A. O., No. 21 Hartman, Vent. Ave., Vent.	22- 3-23	8,280	sd. sh. drlg.
Shell Oil, No. 111 Taylor, Ventura Ave., Ventura	29- 3-23	4,388	sd. sh. drlg.
Shell Oil, No. 112 Taylor, Ventura Ave., Ventura	29- 3-23	1,996	sd. sh. drlg.
Shell Oil, No. 35 Edison, Ventura Ave., Ventura	21- 3-23	8,145	sd. sh. drlg.
Cal. Alliance Pet., No. 2 Hartman, Vent. Ave., Vent.	22- 3-23	5,692	sd. sh. drlg.
Lloyd Corp., No. 4 Dabney, Ventura Ave., Vent.	23- 3-23	10,144	fish D.P.
Belridge Oil, No. 1-26, North Belridge, Kern	1-28-20	8,292	O.S. drlg.
Belridge Oil, No. 4-27, North Belridge, Kern	27-27-20	8,515	redrlg. 8,495
Belridge Oil, No. 1-22, North Belridge, Kern	1-28-20	7,596	sd. sh. drlg.
Tide Water A. O., No. 8-A, Elliott, Lost Hills, Kern	11-26-20	1,475	O.S. drlg.
Texas Co., No. 2 Beer, Devils Den, Lost Hills, Kern	8-26-19	642	sd. sh. drlg.
Davis Pet., No. 1 Kernco, Kern Front, Kern	13-28-27	1,288	P.B. 1,266
Dick & Dore Oil, No. 7 Kern, Kern River, Kern	34-28-28	388	sd. sh. drlg.
Dick & Dore Oil, No. 14 Kern, Kern River, Kern	34-28-28	490	pump 5 b.d.
Dick & Dore Oil, No. 16 Kern, Kern River, Kern	34-28-28	398	sd. sh. drlg.
Heim & Smith, No. 17 Kern, Kern River, Kern	34-28-28	678	pump 6 b.d.
O'Reily, Frances, No. 2 Seale, Edison, Kern	5-30-29	4,070	tested wet
Whiston, H. L., No. 1 Wasem, Edison, Kern	32-29-29	114	sd. sh. drlg.
Universal Consd. Oil, No. 2 Cattani, Arvin, Kern	15-31-29	5,250	sd. sh. drlg.
Union Oil, No. 4-23 Bowerbank, Goose Lake, Kern	25-29-24	12,144	P.B. 11,672
Standard Oil, No. 1 Bryson, Delano gas field, Kern	28-24-23	2,475	22,250 m.c.f.
Trico Oil & Gas, No. 1 Bryson, Del. gas field, Kern	28-24-23	2,466	will deepen
Standard Oil, No. 3 Mushrush, Wasco, Kern	7-27-24	13,130	completing
Continental Oil, No. 5-8-A, KCL, Wasco, Kern	8-27-24	10,645	sd. sh. drlg.
Continental Oil, No. 1 Meyer, Wasco, Kern	7-27-24	6,962	sd. sh. drlg.
Continental Oil, No. 1 Community, Shafter, Kern	12-28-24	3,696	sd. sh. drlg.
Union Oil, No. 21-34, KCL, Rio Bravo, Kern	34-28-25	11,190	fish casing
Union Oil, No. 52-34, KCL, Rio Bravo, Kern	34-28-25	11,390	O.S. drlg.
Superior Oil, No. 2 Burner, Rio Bravo, Kern	27-28-25	11,440	flow 3,025 b.d
Superior Oil, No. 1 Roe, Rio Bravo, Kern	27-28-25	3,898	sd. sh. drlg.
Standard Oil, No. 11-23, KCL, Greeley, Kern	18-29-26	5,996	sd. sh. drlg.
Standard Oil, No. 12-7, KCL, Greeley, Kern	7-29-26	8,671	sd. sh. drlg.
Standard Oil, No. 12-8, KCL, Greeley, Kern	7-29-26	1,543	sd. sh. drlg.
General Pet., No. 1 Farrand, Greeley, Kern	12-29-25	10,009	sd. sh. drlg.
Superior Oil, No. 1 Scofield, Greeley, Kern	12-29-25	8,484	sd. sh. drlg.
Shell Oil, No. 4-28-A, KCL, Ten Section, Kern	28-30-26	8,220	O.S. drlg.
Shell Oil, No. 74-25-A, KCL, Ten Section, Kern	25-30-25	8,174	sd. sh. drlg.
Tide Water-Continental, No. 3-7-E, KCL, Strand, Kern	7-30-26	8,273	O.S. drlg.
Shell-Ohio, No. 64-12-A, KCL, Strand, Kern	12-30-25	8,970	P.B. 8,734
Ohio Oil, No. 17-E, KCL, Canal, Kern	13-30-25	7,090	sd. sh. drlg.
Shell Oil, No. 21-13-A, KCL, Canal, Kern	13-30-25	8,980	fish D.P.
Richfield Oil, No. 72-33-B, KCL, Tupman, Kern	33-30-25	8,260	sd. sh. drlg.
Richfield Oil, No. 58-29-A, KCL, Tupman, Kern	29-30-25	9,042	sd. sh. drlg.
Richfield Oil, No. 76-29-A, KCL, Tupman, Kern	29-30-25	6,843	sd. sh. drlg.
Richfield Oil, No. 67-4-B, KCL, Cole's Levee, Kern	4-31-25	9,909	flow 245 b.d.
Shell Oil, No. 81-17-B, KCL, Cole's Levee, Kern	17-31-25	8,360	sd. sh. drlg.
Standard Oil, No. 20-2, KCL, Cole's Levee, Kern	9-31-25	9,197	sd. sh. drlg.
Standard Oil, No. 20-3, KCL, Cole's Levee, Kern	9-31-25	9,934	tested wet
Ohio Oil, No. 6-F, KCL, Cole's Levee, Kern	11-31-25	9,685	sd. sh. drlg.
Ohio Oil, No. 7-F, KCL, Cole's Levee, Kern	3-31-25	8,550	sd. sh. drlg.
Tide Water A. O., No. 81, KCL, Cole's Levee, Kern	14-31-25	10,934	P.B. 10,125
Tide Water A. O., No. 65, KCL, Cole's Levee, Kern	13-31-25	10,280	sd. sh. drlg.
Tide Water A. O., No. 72, KCL, Cole's Levee, Kern	14-31-25	1,035	cmtd. 1,035
Union Oil, No. 54-11, KCL, Cole's Levee, Kern	11-31-25	9,890	O.S. drlg.
Richfield Oil, No. 1 Slough, South Ten Section, Kern	6-31-26	9,398	sd. sh. drlg.
Merritt-Annex Oil, No. 1-34, M.A., Midw.-Sun., Kern	34-32-24	2,200	cleaning out
Oxford Oil, No. 7 Midway, Midway-Sunset, Kern	27-31-22	1,700	pump 101 b.d.
General Pet., No. 1 B.V.A., Midway-Sunset, Kern	1-32-24	10,690	hd. sh. drlg.
Signal Oil & Gas, No. 7 Kendon, Midway-Sun., Kern	35-32-23	1,096	sd. sh. drlg.
Shell Oil, No. 45-9 B.V.A., Midway-Sunset, Kern	9-32-25	9,890	redrlg. 9,660
National Oil, No. 35 Sunset, Midway-Sunset, Kern	35-32-23	1,198	sd. sh. drlg.
Texas Co., No. 37 Midway, Midway-Sunset, Kern	32-32-24	3,209	O.S. drlg.
Ohio Oil, No. 43-3-B, KCL, Paloma, Kern	3-32-26	8,494	sd. sh. drlg.
West. Gulf-Texas Co., No. 74-3-A, KCL, Paloma, Kern	3-32-26	10,360	O.S. drlg.
Richfield Oil, No. 81-36 B.V.A., Buena V. Lake, Kern	36-31-25	11,379	P.B. 5,580
Shell Oil, No. 52-2-13-A, KCL, San Emidio, Kern	13-11-22	13,050	hd. sh. drlg.
Cal.-Stan Oil, No. 1 Weber, McKittrick, Kern	34-30-22	1,220	P.B. 1,132
Burrhus, V. E., No. 1 Haberkern, Elkhorn, Kern	21-32-22	1,760	sd. sh. drlg.
Jergins Trust, No. 1 Cheney, Panoche Creek, Fresno	29-14-13	5,594	gr. sh. drlg.
Texas Co., No. 1 S.P., Turk Anticline, Fresno	23-17-15	1,085	sd. sh. drlg.
Standard Oil, No. 51-19-B fee, N.E. Coalinga, Fresno	19-19-16	8,102	cmtd. 8,030
Standard Oil, No. 62-19-B fee, N.E. Coalinga, Fresno	19-19-16	7,476	sd. sh. drlg.
Union Oil, No. 75-18 Cook, N.E. Coalinga, Fresno	18-19-16	8,256	flow 192 b.d.
Union Oil, No. 88-18 Cook, N.E. Coalinga, Fresno	18-19-16	6,874	sd. sh. drlg.
Amerada Pet., No. 22-20 Ewing, N.E. Coal., Fresno	20-19-16	7,781	sd. sh. drlg.
Bandini Pet., No. 46-18-B, N.E. Coalinga, Fresno	18-19-16	8,150	hd. sd. drlg.
Superior Oil, No. 2 Husong, N.E. Coalinga, Fresno	18-19-16	8,260	flow 1,968 b.d.
Bandini Pet., No. 51-30-B, Central Coalinga, Fresno	30-19-16	7,680	sd. sh. drlg.
Lytle, R. S., Agent, No. 5-7-F, S.E. Coalinga, Fresno	7-20-16	5,898	sd. sh. drlg.
Lytle, R. S., Agent, No. 24-7-F, S.E. Coalinga, Fresno	7-20-16	5,572	sd. sh. drlg.
Lytle, R. S., Agent, No. 37-18-F, S.E. Coal., Fresno	18-20-16	7,260	sd. sh. drlg.
Standard Oil, No. 66-13-C fee, S.E. Coalinga, Fresno	13-20-15	7,437	O.S. drlg.
Standard Oil, No. 42-19-F fee, S.E. Coalinga, Fresno	19-20-16	6,690	sd. sh. drlg.
Superior Oil, No. 4 Cagle, S.E. Coalinga, Fresno	6-20-16	4,993	sd. sh. drlg.
K. N. D. A., No. 27-18-J, Kettleman N. Dome, Fresno	18-21-17	8,850	hd. sd. drlg.
K. N. D. A., No. 334-18-J, Kettleman N. D., Fresno	18-21-17	8,197	hd. sd. drlg.
K. N. D. A., No. 25-16-Q, Kettleman N. Dome, Kings	16-22-18	7,140	sd. sh. drlg.
K. N. D. A., No. 36-26-Q, Kettleman N. Dome, Kings	26-22-18	8,496	completing
K. N. D. A., No. 38-26-Q, Kettleman N. Dome, Kings	26-22-18	5,760	sd. sh. drlg.
Standard Oil, No. 27-19-J, Kettleman N. D., Fresno	19-21-17	10,636	redrlg. 10,634
Standard Oil, No. 72-19-J, Kettleman N. D., Fresno	19-21-17	10,903	fish D.P.
Standard Oil, No. 57-3-P, Kettleman N. D., Kings	3-22-17	5,480	sd. sh. drlg.
Standard Oil, No. 54-7-Q, Kettleman N. D., Kings	7-22-18	8,560	flow 1,020 b.d.
Standard Oil, No. 61-17-Q, Kettleman N. D., Kings	17-22-18	7,990	sd. sh. drlg.
Standard Oil, No. 72-17-Q, Kettleman N. D., Kings	17-22-18	7,084	sd. sh. drlg.
Standard Oil, No. 76-17-Q, Kettleman N. D., Kings	17-22-18	8,145	recmtd. 7,005
Standard Oil, No. 83-17-Q, Kettleman N. D., Kings	17-22-18	8,315	recmtd. 7,395
Standard Oil, No. 52-21-Q, Kettleman N. D., Kings	21-22-18	8,195	flow 2,370 b.d.
Standard Oil, No. 74-21-Q, Kettleman N. D., Kings	21-22-18	8,080	completing
Standard Oil, No. 32-27-Q, Kettleman N. D., Kings	27-22-18	7,800	recmtd. 6,428
Standard Oil, No. 72-27-Q, Kettleman N. D., Kings	27-22-18	2,684	sd. sh. drlg.
Standard Oil, No. 83-27-Q, Kettleman N. D., Kings	27-22-18	5,840	br. sh. drlg.
Standard Oil, No. 63-35-Q, Kettleman N. D., Kings	35-22-18	7,380	sd. sh. drlg.
Bristol Oil, No. 1 Ohio-Smith, Kettleman S. D., Kings	35-24-19	8,054	cleaning out
Shell Oil, No. 1 Cohn, Tulare Lake, Kings	4-22-19	6,870	sd. sh. drlg.
Priest Val. Pet., No. 1 Greve, Priest Val., Monterey	22-20-12	1,950	hd. sd. drlg.
Buttes Oilfields, No. 6 Buttes, Marysville, Sutter	1-15- 1	6,191	sd. sh. drlg.
Texas Co., No. 1 Holmes, Eureka, Humboldt	22- 3- 1	2,538	D.P. froze
Richfield Oil, No. 2 Hill, Potrero, Solano	5- 4- 1	1,355	sd. sh. drlg.

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well, location, and county—	S. T. R.	Depth	Status—
Union Oil, No. 74 Callender, Dominguez, L. Angeles	29- 3-13	7,117	water witch
Union Oil, No. 13 Carson, Dominguez, Los Angeles	33- 3-13	7,267	sd. sh. drlg.
Shell Oil, No. 100 Reyes, Dominguez, Los Angeles	33- 3-13	7,820	will P.B.
Morton & Elder, No. 2 Dominguez, Dominguez, L. A.	32- 3-13	6,694	sd. sh. drlg.
Barnsdall Oil, No. 1 Santa Fe, Rosecrans, L. A.	20- 3-13	8,792	swabbing

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Acd., acidized.
B.O., barrels of oil.
B.P.D., barrels per day.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
B. ck., bottom choke.
Br. sh., brown shale.
B.S., basic sediment.
C.&P., cellar and pits.
Cd. or Crd., cored.
C.D., correct depth.
Cg., coring.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg., or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.S.T., drill-stem test.
D.P., drill pipe.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging back.
P.B.P., pulling or pulled big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Recvd., recovered.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtrkd. or St., sidetracking.
S.D.P.L., shut down for pipe line.
S.D.O., or S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas, and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T. ck., top choke.
T.P., tubing pressure.
Tr., tract.
Tstd., tested.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting on cement to set.
W.O.O., waiting on orders.
W.P., working pressure.
W.S.O., water shutoff.
W.S.S.O.K., water shutoff O.K.
W.S.R. or W.O.S.R., awaiting standard rig.
Wtr., water.

Averill, George, No. 3 South, Rosecrans, L. A.	20-	3-13	8,405	P.B. 8,215
Apex Pet., No. 1 Hatfield, Rosecrans, Los Angeles	20-	3-13	7,097	sd. sh. drig.
Kelly & Sons, No. 1 McMillen, Rosecrans, L. A.	20-	3-13	7,693	tested wet
South. Calif. Pet., No. 1 Rowena, Rosecrans, L. A.	19-	3-13	7,351	sd. sh. drig.
Union Oil, No. 36 Rosecrans, Rosecrans, Los Angeles	19-	3-13	7,700	O.S. drig.
Union Oil, No. 37 Rosecrans, Rosecrans, Los Angeles	19-	3-13	6,194	sd. sh. drig.
Royalty Service, No. 1 Cement, Rosecrans, L. A.	19-	3-13	4,573	sd. sh. drig.
Basin Oil, No. 6 Potrero, Potrero, Los Angeles	34-	2-14	3,770	flow 440 b.d.
Basin Oil, No. 7 Potrero, Potrero, Los Angeles	34-	2-14	3,585	redrig. 3,000
Casa Grande Oil, No. 1 Lopez, San Fernando, L. A.	1-	2-15	2,320	prod. test
Tide Water A. O., No. 3 Porter, Aliso Canyon, L. A.	27-	3-16	4,920	sd. sh. drig.
Tide Water A. O., No. 12 Porter, Aliso Canyon, L. A.	27-	3-16	7,240	hd. sh. drig.
Tamas Oil, No. 1 Perkins, Newhall, Los Angeles	14-	3-16	3,900	sd. sh. drig.
Consolidated Pet., No. 4 Needham, Newhall, L. A.	13-	3-16	4,240	sd. sh. drig.
Barnsdall Oil, No. 8 R.S.F., Newhall, Los Angeles	27-	4-17	7,373	flow 840 b.d.
General Pet., No. 36 Harbor, Wilmington, L. A.	35-	4-13	2,945	completing
Bond Pet., No. 1 Star, Wilmington, Los Angeles	35-	4-13	3,151	O.S. drig.
Edco Pet., No. 1 Harbor, Wilmington, Los Angeles	35-	4-13	3,437	pump 185 b.d.
Gremac Oil, No. 3 Harbor, Wilmington, Los Angeles	4-	5-13	3,625	pump 296 b.d.
Hamarson Oil, No. 1 Harbor, Wilmington, L. A.	35-	4-13	3,400	O.S. drig.
Hancock Oil, No. 20-B Harbor, Wilmington, L. A.	35-	4-13	4,070	completing
Interstate Inv., No. 3 Harbor, Wilmington, L. A.	3-	5-13	3,219	O.S. drig.
Long Beach Dev., No. 4-Z Harbor, Wilmington, L. A.	3-	5-13	1,695	sd. sh. drig.
Long Beach Dev., No. 5-Z Harbor, Wilmington, L. A.	3-	5-13	2,675	O.S. drig.
Union Pacific R. R., No. 121, Wilmington, L. A.	3-	5-13	4,061	will P.B.
Union Pacific R. R., No. 125, Wilmington, L. A.	4-	5-13	3,588	completing
Union Pacific R. R., No. 127, Wilmington, L. A.	3-	5-13	2,475	sd. sh. drig.
Union Pacific R. R., No. 21-E, Wilmington, L. A.	3-	5-13	3,384	C.P. 3,424
Union Pacific R. R., No. 7-C, Wilmington, L. A.	33-	4-13	2,998	sd. sh. drig.
West Whittier Oil, No. 1 Pellissier, Whittier, L. A.	17-	2-11	2,674	sd. sh. drig.
Kern Oil, No. 38 Monterey, Montebello, L. A.	2-	2-12	2,080	sd. sh. drig.
Union Oil, No. 9 Howard & Smith, Montebello, L. A.	11-	2-12	5,882	sd. sh. drig.
Bush Oil, No. 1 Nehouse, Montebello, Los Angeles	3-	2-12	7,713	flow 610 b.d.
Bush Oil, No. 2 Zanetti, Montebello, Los Angeles	3-	2-12	7,555	O.S. drig.
Caminol Co., No. 4-20 Cowan, Montebello, L. A.	3-	2-12	3,876	sd. sh. drig.
C. A. P. Oil, No. 1 Dutch, Montebello, Los Angeles	11-	2-12	7,657	cleaning out
Crestline Oil, No. 1 Pedro, Montebello, Los Angeles	11-	2-12	7,480	sd. sh. drig.
Columbia Oil, No. 1 Schelnik, Montebello, L. A.	3-	2-12	3,488	sd. sh. drig.
Getty-Pac. West., No. 1 Porter, Montebello, L. A.	10-	2-12	7,598	flow 275 b.d.
Herley-Kelly, Inc., No. 3 Burke, Montebello, L. A.	2-	2-12	4,432	fish D.P.
Junior Oil, No. 1 Kay, Montebello, Los Angeles	11-	2-12	6,374	sd. sh. drig.
Larson Drig., No. 3 Van Deusen, Montebello, L. A.	11-	2-12	7,894	fish D.P.
Mabee Co., No. 37 Monterey, Montebello, L. A.	3-	2-12	7,730	flow 248 b.d.
McVicar & Rood, No. 2 Beech, Montebello, L. A.	11-	2-12	7,615	flow 382 b.d.
Shoreline Drlg., No. 1 Mont., Montebello, L. A.	11-	2-12	7,080	sd. sh. drig.
Stagg Oil, No. 1 Brown, Montebello, Los Angeles	10-	2-12	6,074	sd. sh. drig.
Star Pet., No. 1 Prescott, Montebello, Los Angeles	10-	2-12	7,625	completing
Star Pet., No. 1 Allen, Montebello, Los Angeles	11-	2-12	5,685	sd. sh. drig.
Texas Co., No. 2 Wilcox, Montebello, Los Angeles	3-	2-12	7,740	redrig. 4,096
Texas Co., No. 3 Wilcox, Montebello, Los Angeles	3-	2-12	7,698	sd. sh. drig.
Westmont Oil, No. 1 West, Montebello, Los Angeles	11-	2-12	5,892	sd. sh. drig.
Winlock Oil, No. 1 Win, Montebello, Los Angeles	11-	2-12	7,490	O.S. drig.
Allied Pet., No. 34 Signal, Long Beach, L. A.	30-	4-12	6,075	sd. sh. drig.
Caminol Co., No. 3-19 Dominguez, Long Beach, L. A.	11-	4-13	8,402	P.B. 7,640
Great Northern Oil, No. 1 Oak, Richfield, L. A.	28-	3- 9	3,225	sd. sh. drig.
Morgan, George, No. 1 Fricke, Yorba Linda, L. A.	21-	3- 9	2,125	will redrl.
Master Pet., No. 1 Wright, E. Coyote, Orange	30-	3- 9	5,598	cmtd. 4,260
Union Oil, No. 22 Hole, E. Coyote, Orange	22-	3-10	5,388	completing
Standard Oil, No. 2-13 Coyote, E. Coyote, Orange	22-	3-10	4,680	sd. sh. drig.
Southwest Expl., No. 23 State, Hunt. Beach, Orange	10-	6-11	3,897	sd. sh. drig.
Orr, Sara, No. 1 Montgomery, Hunt. Beach, Orange	36-	5-11	4,494	cleaning out
Tide Water A. O., No. 7 Bryant, Seal Beach, Orange	11-	5-12	3,750	sd. sh. drig.
General Pet., No. 1 Was, Garden Grove, Orange	21-	5-10	5,955	dry; abd.
Thompson, M. N., No. 1 Smith, Costa Mesa, Orange	9-	6-10	3,242	sd. sh. drig.

OKLAHOMA

Week Ended January 20

NORTHERN OKLAHOMA

Caddo County

Sinclair Prairie Oil Co.'s No. 1 German, SW NW NW Sec. 1-16-13w. Wlx. 9,179 ft.; set 7-in. csg. 9,167 ft.; at 9,195 ft. had 200 ft. mud on D.S.T.; cg. ahd.

Cleveland County

Sinclair-Prairie's No. 1 Ward, SE SE SE Sec. 30-7-1. Hntn. 6,185 ft.; Vla. 6,408 ft.; open 30 min. at 6,800 ft.; rec. S. W.; P.B. to 6,782 ft.; T.D. 8,322 ft.; D.S.T. 8,236-8,322 ft.; rec. 1,300 ft. S. W.; P.B. 6,225 ft.; ripped 5,445-60 ft.; H.F.W.; S.D.

Comanche County

Mid Night Oil's No. 1 Howe, NW NW NE Sec. 30-2-13w. O.W.D.D.; O.T.D. 703 ft.; dpnd. to 998 ft.; perf.; swbg.

Creek County

Bryan Pet. Co.'s No. 1 Ah-Say, NE NW NE Sec. 34-14-7. Spd.

A. S. Kaplan's No. 1 Anthis, NW NW SE Sec. 12-15-9. Wlx. 3,375 ft.; T.D. 3,406 ft.; S.D.

Waite Drlg. Co.'s No. 1 Garrett, NE NE NE Sec. 25-14-10. Drlg. 2,580 ft.

Dewey County

Magnolia Pet. Co.'s No. 1 Fiekes, C SW SW Sec. 31-18-14w. Drlg. 6,418 ft.

Garfield County

Fain Drlg.'s No. 1 Schnakenburg, NE SE SW Sec. 31-21-4w. Drlg. 5,056 ft.

Garvin County

Duckworth & Jennings' No. 1 Bowie, NW NE SE Sec. 3-4-3. W.O.C. 90 ft.

Grant County

Continental Oil Co.'s No. 1 Krichmar, SE SE NE Sec. 28-28-5w. Spd.

Hughes County

Hall & Jordan's No. 1-A Barker, SE SE SW Sec. 3-8-9. S.D. 325 ft.

Tom Nix's No. 1-A Warren, SE SE SE Sec. 4-6-8. S.S.O. 903-08 ft.; T.D. 930 ft.; drlg. plug; may recmt.; S.D.

Thompson Bros.' No. 1 Meadors, NE NE NE Sec. 23-9-9. R.U.S.T. 3,230 ft.; H.F. O. in 6 hrs.; S. 28 B.O. in 24 hrs.; T.D. 3,284 ft.; S.W. and P.B. to 3,276 ft.; shot; P.O.P.

Walker & Johnson's No. 1 Rogers, NE NE NE Sec. 24-7-9. Drlg. 650 ft.

Kay County

Marland Oil Co.'s No. 1 Kreger, SE SE NE Sec. 4-25-2w. Rig.

Marland Oil Co.'s No. 1 Woods, NW NW SW Sec. 19-25-1w. Rig.

Malarnee Oil Co.'s No. 1 Harris, C SW NE Sec. 14-25-1. S.S.O. 3,583 ft.; T.D. 3,787 ft.; 8-in. 3,743 ft.; W.O.C.

Kingfisher County

Phillips Pet. Co.'s No. 1 Drape, C NW SE Sec. 30-18-5w. M.I.M.

Kiowa County

Frank Dillard et al's No. 1 Hobbs, SE SE NW Sec. 35-6-17w. Set 6⅝-in. 525 ft.; T.D. 690 ft.

C. J. Hagerling's No. 1 Kimray, SW SW NW Sec. 36-5-15w. T.D. 1,604 ft.; D. &A.

Lincoln County

Harper & Turner's No. 1 Shaeffer, NW NW NW Sec. 6-16-2. 2nd Wlx. 5,135-46 ft.; D.&A.

R. M. Purcell et al's No. 1 Wolcott, NW NW NW Sec. 2-13-4e. R.O.G.

Geo. Travis et al's No. 1 Teter, NW NW SW Sec. 24-17-2. Mch.

Youngblood et al's No. 1 Wright, NE NE SE Sec. 32-16-6. W.O. tools 3,950 ft.

McIntosh County

Phillips' No. 1 Blankenship, C SW NW Sec. 37-10-13. Drlg. 2,472 ft.

Muskogee County

R. Garrett's No. 1 Escoe, SW SW SE Sec. 16-13-17. S.D. 968 ft.

Noble County

Franks & Ellis' No. 1 Stranka, SW SW NW Sec. 35-24-1w. T.D. 1,660 ft.; S.D

Marland Oil Co.'s No. 1 Rosecrants, NW NW SE Sec. 14-24-1e. Loc.

Osage County

W. M. McKnab's No. 1 Osage, NW NE SW Sec. 15-29-8. Drlg. 1,555 ft.

Pawnee County

W. H. Atkinson's No. 1 Wilkerson, NW NE NW Sec. 14-22-4. Drlg. below 3,-573 ft.

Payne County

Gardner Pet. Co.'s No. 1 Wetzel, NE SW SE Sec. 2-18-1e. Drlg. 870 ft.

H. N. Greis, Deep Rock Oil Corp., and Helmrich & Payne's No. 1 Kramer, NW NW SE Sec. 24-17-1e. Rig.

Pontotoc County

Crescent Oil Co.'s No. 2 Thompson, NE NW SW Sec. 29-3-4. T.D. 460 ft.; S.D.

Pottawatomie County

Alma Oil Co.'s No. 1 Lyday, SE NE SW Sec. 30-6-5. R.U.R.

Seminole County

Stanolind O. & G. Co.'s No. 1 Aldridge, NW NE SE Sec. 32-9-8. Cellar.

Wood Oil et al's No. 1 Crow, SE SE SE Sec. 31-8-6. Wlx. 4,603 ft.; T.D. 4,622 ft.; D.&A.

SOUTHERN OKLAHOMA

Carter County

W. F. Turner's No. 1 Smith, NE SW SE Sec. 16-3s-1w. Drlg. below 3,625 ft.

Choctaw County

Clyde Ross et al's No. 1 Hardy, SE SE NW Sec. 21-7s-15. Sd. 1,755 ft.; T.D.; S.D.

Jackson County

English Drlg. Co.'s No. 1-A Aetna Life, SE SE NE Sec. 26-3n-20w. S.D. 1,610 ft.; csg.

Jones & Robinson's No. 1 Neal, SW SW SW Sec. 8-1s-20w. Rig.

Harper et al's No. 1 Thompson, SE SE SE Sec. 5-1s-21w. T.D. 3,949 ft.; cor.; T.A.

Jefferson County

Fred Land et al's No. 1 Barrett, NE SE SE Sec. 14-6s-6w. Sd. 1,852 ft., S.O.; D. P. stk. at 1,100 ft.; T.D. 1,890 ft.; S.D.

Marshall County

Johnson et al's No. 1 Godfrey, SW SE NE Sec. 14-6s-6e. Vla. 2,627 ft.; S.S.O.; T.D. 4,455 ft. in sd.; S.O.; S.D.

May Oil Corp.'s No. 1 Sacrea, SW NE SW Sec. 17-5-5. Drlg. 135 ft.

Pure Oil's No. 1 Little, W½ NE SE Sec. 28-5s-7e. Drlg. 2,915 ft.

KANSAS

Week Ended January 20 (Descriptions are East unless marked otherwise)

Barton County

Brunson's No. 1 Wondra, CWL SW NE Sec. 15-17-12w. Drlg. 2,685 ft.

Butler County

Allison & Talbott's No. 1 Zink, SE SE NE Sec. 32-29-5. Drlg. 1,520 ft.

Carey & Jennings' No. 1 Kelly, C SW Sec. 20-27-4. T.D. 2,660 ft.; T.A.

Davidson & Flack's No. 1 Wilhite, NE NE SW Sec. 16-27-7. S.D. 665 ft.

Natl. Ref. Co. No. 1 Lankford, SE SE NE Sec. 23-27-5. Drlg. 1,928 ft.

Natl. Ref. Co.'s No. 1 Smith, NE NW SE Sec. 9-28-5. Drlg. 1,020 ft.

C. H. Pechin et al's No. 1 Hartenbower (O.W.D.D.), NW NW NW Sec. 16-29-6. O.T.D. 3,257 ft.; Peru sd. 2,476-2,530 ft.; S.D. 1,200 ft.

Cowley County

Crown Pet. Co. et al's No. 1 Dunn, NW NW SE Sec. 19-34-6. Cmtd. 10-in. 108 ft.; S.D. 200 ft.

Garden's No. 1 Rahn, SW SW NW Sec. 13-34-5. Bart. 2,936 ft.; T.D. 3,425 ft., in. Arb.; F. 120 B.O. 1st hr.; S.I.

Markey & Talbot's No. 1 Anderson, CNL E½ NW Sec. 21-30-3. Surf. hole.

Mission Oil's No. 1-A Hunt, SW SW NE Sec. 16-34-5. S.D. 1,050 ft.

Mitchell Drlg.'s No. 1 Batchelder, CEL SW¼ Sec. 27-30-6. Drlg. 3,260 ft.

Ellis County

J. J. Hall's No. 1 Smith-A, C W½ NW NE Sec. 13-12-16w. R.U.

Ellsworth County

Cities Service Oil Co.'s No. 1 Padiena S.O. 2,836 ft.; T.D. 3,113 ft.; P. 595 B. W. and no oil in 21 hrs.; P. 25 B.O. and 589 B.W. in 22 hrs.; drld. cmt. and perf.; 350 ft. W.I.H. in 4 hrs.; cemented perf.

Phillips Pet. Co.'s No. 1 Sturn, SE SE NW Sec. 36-17-10w. Loc.

Greenwood County

A. A. Hinze et al's No. 1 Hester, NW SW NE Sec. 1-22-12. S.D. 510 ft.

Rex & Morris' No. 1-A Wright, C N½ Lot 16, Sec. 30-28-8. M.I.M.

Jefferson County

McLaughlin Sons, Inc.'s No. 1 McLaughlin, SW NE NW Sec. 4-10-20. T.D. 1,-915 ft.; whpstk. 1,858 ft.; drlg. 1,905 ft.

Johnson County

F. J. Kasper's No. 1 Kaths, SE SE NW Sec. 33-13-22. T.D. 794 ft.; est. 500,000 cu. ft. gas; comp.

Lambertson et al's No. 1 Green, SW NE SW Sec. 25-14-22e. Burg. 1,038 ft.; S. S.O.; S.D. 1,040 ft.

McCain's No. 1 Doan, C SW NW Sec. 34-12-22. S.D. 940 ft.

McPherson County

Aladdin Pet. Co.'s No. 1 Bitikofer, CNL NE NW Sec. 1-20-1w. Cellar.

Central Pet.'s No. 1 Swanson, C N½ NW NW Sec. 18-20-5w. Miss. 3,304-19 ft.; good sat.; R.U.S.T.; T.D. 3,343 ft.; F. 375 B.O. in 2½ hrs.; csg.

Westgate-Greenland's No. 1 Chindberg, C N½ NE SE Sec. 18-18-1w. T.D. 2,795 ft.; P.B. 2,794 ft.; drlg. plug.

Marion County

Polhamus et al's No. 1 Noone, NW NW SE Sec. 18-18-3. S.D. 2,785 ft.

Troxwell et al's No. 1 Bezdek, NE SW SW Sec. 32-17-4. Miss. 2,396 ft.; 7-in. 2,401 ft.; S.D. 2,443 ft.

Rice County

Mid-Plains Oil Co.'s No. 1 Newkirk, CSL SW SW Sec. 14-18-7w. Drlg. 2,745 ft.

Rooks County

Seaney & Clampitt's No. 1 Morrison, CS L SW NE Sec. 32-10-17w. Loc.

Russell County

I. W. Murfin et al's No. 1 St. Aubyan, CSL SW SE Sec. 1-15-15w. Drlg. 475 ft.

Ray Shaffer et al's No. 1 Shaffer, NE NE SW Sec. 9-13-11w. S.D. 1,315 ft.

Webb & Wakefield's No. 1 Schmidtberger, CNL NE SW Sec. 17-13-15w. Spd.

Stafford County

Shell Oil's No. 1 Smith, SE SE NW Sec. 9-21-11w. S.S.O. in core at 3,410-15 ft.; R.U.S.T. 3,415 ft.; T.D. 3,462 ft.; P.B. 3,388 ft.; flw. 82 B.O. in 6 hrs. by hds. No test.

ARKANSAS

Columbia County

Arkansas Fuel Oil Co.'s No. 2-B King, C SE NW Sec. 21-17-20. T. Smkvr. L. 7,606 ft.; T. 1st por. 7,653 ft.; main por. 7,669 ft.; set 6-in. csg. 7,682 ft.; T.D. 7,682 ft.; perf. 7,668-80 ft.; flwd. 90% S.W.; set cmt. retainer 7,656 ft. and sqzd.; reperf. 7,668-73 ft.; tstd. 122 B.O. and 14 bbl. S.W.; 12/64-in. ck.; T.P. 250 lb.; C.P. 2,500 lb.; tstg. 7,682 ft.

Gulf Ref. Co.'s No. 1 Lewis, C SW NE Sec. 12-18-23. T.D. 6,830 ft.; T. Ctn. Vly. 6,688 ft.; drlg. rd. sdy. sh. 8,539 ft.

Hunt Oil Co.'s No. 2 McWilliams, NE NE Sec. 16-18-19. 9⅝-in. csg. 2,109 ft.; drlg. rd.&gr. sh. 4,680 ft.

J. K. Mahoney's No. 2 E. Riley, C NE NE Sec. 14-18-19. Set 10¾-in. csg. 2,-490 ft.; W.O.C.

Normandie Oil Co.'s No. 1 C. E. Crumpler, 495 ft. N, 660 ft. E, SW cor. SE Sec. 18-17-19. Drlg. rd.&gr. sh. 4,862 ft.

Normandie Oil Co.'s No. 1 H. E. King, C NE NE Sec. 20-17-20. Set 16-in. csg. 120 ft.; washing; set 7-in. csg. 7,626 ft.; T.D. 7,630 ft.

Placid Oil Co.'s No. 1 Boothe Unit, C NE SE Sec. 10-17-19. Drlg. L. 7,580 ft.

Shell Oil Co., Inc.'s No. 1 Keith, C SE SE Sec. 9-18-22. 9⅝-in. csg. 2,265 ft.; T.D. 8,849 ft.; T. por. L. 8,823 ft.; cd. 8,859-69 ft.; D.S.T. 8,856-69 ft.; rec. 120 ft. oil, drlg. mud, and wash wtr.; cd. 8,869-79 ft.; D.S.T. 8,864-79 ft.; rec. 150 ft. light gr. oil, drlg. fluid, and sulf. wtr.; T.D. 8,879 ft.; rng. csg.

Shell Oil Co., Inc.'s No. 2 D. H. Lewis, C SE NE Sec. 19-17-19. Drlg. rd. sdy. sh. 5,840 ft.

Southwood Oil Co.'s No. 1 Poindexter-Couch unit, 559 ft. S, 660 ft. W, NE

cor. SE SE Sec. 23-17-20. Drlg. rd.& gr. sh. 3,563 ft.
Southwood's No. 1-A Poindexter, 100 ft. N, C SE SE Sec. 23-17-20. Drlg. 3,420 ft.
Standard Oil Co. of La.'s No. 2 Booth, 660 ft. E, 560 ft. S, NW cor. SW SE Sec. 24-17-20. Set 6-in. csg. 7,517 ft; W.O.C.
Standard Oil Co. of La.'s No. 1-B Longino, C NW SE Sec. 19-17-19. Drlg. sh. 4,212 ft.
Tide Water-Seaboard Oil Co.'s No. 1 W. Mack, C SW NE Sec. 16-18-19. R.U.

Craighead County

Tennark, Inc., No. 1 R. M. Martin, SE cor. NE NE Sec. 35-14-3e. Drlg. hd. L. 4,850 ft.

Howard County

Wm. James, tr.'s No. 3 I. M. Rooke, 50 ft. SW of No. 1, Sec. 2-8s-27w. S.D. 397 ft. for D.S.

Lafayette County

East Texas Ref. Co. et al's No. 1-C C. Warren et al, C NE SE NW Sec. 24-16-24. Tstd. S.W. 3,504-24 ft.; P.B. 2,275 ft.; drld. to 2,345 ft.; 5½-in. csg. 2,323 ft.; T.D. 2,345 ft.; arng. swb.

Nevada County

Berry Asphalt Co.'s No. 5 Fincher, 220 ft. NW cor. NE SE Sec. 10-14-20. Set 10-in. csg. 20 ft.; T. sd. 1,245 ft.; set 7-in. csg. 1,245 ft.; T.D. 1,246 ft.; W. O.S.R.
Berry Asphalt Co.'s No. 9 Groves Ld. & Tmbr. Co., 330 ft. S and W, C Sec. 10-14-20. R.U.

Union County—Schuler

Lion Oil Co.'s No. 1 Land, 330 ft. NE cor. SW SE Sec. 13-18-18. T. Jones sd. 7,552 ft.; set 7-in. csg. 7,644 ft.; T.D. 7,645 ft.; W.O.C.
Lion Oil Ref. Co.'s No. 7-B Morgan, 330 ft. NW cor. W½ SE Sec. 18-18-17. T. Jones sd. 7,546 ft.; T.D. 7,730 ft.; set 7-in. csg. 7,730 ft.; perf. 5,570-80 ft. and 5,592-98 ft.; swbd. S.W.; S.G.; sqzd.; perf. 5,823-26½ ft.; swbd. S.W.; set retainer 5,813 ft.; perf. 5,820-23 ft.; swbd. dry; perf. 5,820-25 ft.; swbd. S. W.; reperf. 5,824-32 ft.; swbd. 10 B.O. and 15 bbl. S.W., 16 hrs.; T.D. 5,871 ft.; W.O.
Phillips Pet. Co.'s No. 5 Brian, 330 ft. SE cor. NW SE Sec. 13-18-18. Drlg. 2,212 ft.
Phillips Pet. Co.'s No. 1 Goodwin, 330 ft. N, 660 ft. W, SE cor. Lot 1, Sec. 19-18-17. Set 13⅜-in. csg. 147 ft.; drlg. rd. sdy. sh. 7,557 ft.

Union County—Other

Barnsdall Oil Co.'s No. 1 Cameron, C SW SW Sec. 36-19-17. Set 13⅜-in. csg. 230 ft. (cor.); set 10¾-in. csg. 2,430 ft.; cd. 4,149-66 ft.; rec. 16 ft. 8 in. hd. sd., sl. odor gas; B. chalk 2,593 ft.; T. Tko. 3,061 ft.; ran Schlmb. to 8,000 ft.; drlg. hd. sd.&sh. 8,012 ft.
Ruth S. Easley's No. 1 J. M. Davis, C SE NW Sec. 28-16-14. T.D. 2,750 ft., rd. sh.
Kinard, Curtis et al's No. 1 J. A. Kelly, 330 ft. SW cor. SE SW Sec. 9-17-14. R.U.
Ouachita Union Oil Corp.'s No. 1 Ramsey est., 330 ft. NE cor., SE NW Sec. 26-17-14. Set 10-in. csg. 107 ft.; set whpstk. 3,042 ft.; S.D., rd. sh. 3,490 ft.

MISSOURI

Buchanan County

Miller et al's No. 1 Corrough, C SE SE Sec. 24-57-35w. Arb. 2,245 ft.; T.D. 2,260 ft.; S.D.

Knox County

W. H. Oberithier et al's No. 1 Campbell, C NE Sec. 18-61-12w. Hntn. 575 ft.; drlg. 576 ft.

Schuyler County

T. E. Baldwin's No. 1-A Johnson, NW NE NE Sec. 21-65-15w. T.D. 1,069 ft.; prep. to test S.O. in Hntn. L.
Rogers & Morrow's No. 1 Seamster, C N½ SW SE Sec. 6-64-13w. T.D. 800 ft.; T.A.

IOWA

Union County

Phillips Pet. Co.'s No. 1 Creston, C SE NE Sec. 31-71-30w. Drlg. 1,490 ft.

NEBRASKA

Richardson County

Pawnee Royalty's No. 1 Boice, CSL N½ NE NE Sec. 18-1-16e. Hntn. 2,276 ft.: dpnd. to 2,292 ft.; P.&F. 100 B.O. and 300 to 400 B.W. daily.
Pawnee Royalty's No. 1 Myers, C NW NW Sec. 24-1-1e. Drlg. 2,700 ft., with 1,700 ft. W.I.H.

LOUISIANA

N. LOUISIANA WILDCATS

Bienville Parish

Harry Hanbury's No. 1 Holston unit, 70 ft. from NE cor. SW NE Sec. 29-18-6. Drlg. 2,215 ft.

Bossier Parish

Gulf Ref. Co.'s No. 20 C. B. Hodges, 3,131 ft. N, 1,388 ft. W, SE cor. Sec. 24-16-12. T. Pett. L. 5,298 ft.; T. Travis Pk. 5,590 ft.; T.D. 7,689 ft.; hole clean; drlg. sh.&sd. 7,936 ft.
Union Prod. Co.'s No. 1-B Thigpen-Herold, 1,275 ft. S, 1,279 ft. E, NW cor. Sec. 19-17-11. R.U.
J. K. Wadley's No. 1 Vance est., 1,739 ft. N, 277 ft. E, SW cor. Sec. 4-19-13. R.U.

Caddo Parish

Ark. Fuel Oil Co.'s No. 4 Hunter Oil Co., 330 ft. SW cor. NW SW Sec. 1-20-16. 7-in. csg. 1,394 ft.
Hugh Carney's No. 1 Burton, 2,279 ft. S, 773 ft. W, NE cor. NW Sec. 1-20-16. Set 10-in. csg. 80 ft.; set 7-in. csg. 1,380 ft.
D. T. Cauble's No. 1 Darnell, Sec. 17-22-16. Set 10-in. csg. 80 ft.; T.D. 2,125 ft.; S.D.; rig repair.
Mrs. O. P. Clements' No. 2-B Caddo Lv. Bd., Sec. 5-20-16. T. sd. 1,860 ft.; set 6-in. csg. 2,219 ft.; W.O.S.R. 2,305 ft.
Ferguson & Page's No. 3 Pala Oil Co., Sec. 1-20-16. R.U.
C. C. Lowery's No. 1 Huckaby, 890 ft. S, 990 ft. E, C Sec. 7-20-15. Set 10-in. csg. 60 ft.; set 7-in. csg. 1,328 ft.; acd. with 3,000 gal.; W.O.S.R. 1,486 ft.
McDonald & Campbell's No. 6-A Natalie, 1,840 ft. W, 1,630 ft. N, SE cor. Sec. 10-20-15. T.D. 2,205 ft.; W.O.S.R.
Magnolia Pet. Co.'s No. 29 Dillon, Sec. 24-21-15. R.U.
E. E. Marr's No. 1 Brown, Sec. 11-20-16. Set 10-in. csg. 100 ft.; set 7-in. csg. 1,414 ft.; T.D. 1,600 ft.; will acd.
J. F. Mechem's No. 2 Crystal fee, 400 ft. S, 640 ft. W NE cor. Sec. 14-21-16. Set 8-in. csg. 1,012 ft.; tstd. dry; set 5⅛-in. csg. 2,270 ft.; T.D. 2,283 ft.; W.O.C.
Lee Miller's No. 1 Crystal fee, Sec. 13-21-16. T.D. 2,277 ft.; rng. 5½-in. csg.
E. O. Mitchell's No. 1 fee, Sec. 12-20-16. Loc.
J. Ray Murray's No. 1 Slattery, 314 ft. N, 180 ft. E, SW cor. SE Sec. 21-21-15. Set 6-in. csg. 1,493 ft.; T.D. 1,661 ft.; acd. 2,000 ga.; W.O.S.R.
O'Brien Bros.' No. 1 Bradford et al, Sec. 24-21-15. Set 10-in. csg. 100 ft.; set 6-in. csg. 1,450 ft.; drlg. plug 1,470 ft.
L. R. Skidmore's No. 1 Landau, 150 ft. N, 220 ft. E, SW cor. Sec. 1-20-16. Set 10-in. csg. 80 ft.; set 7-in. csg. 1,360 ft.; T.D. 1,380 ft.; W.O.C.
Stanolind O. & G. Co.'s No. 1 Alexander, 2,310 ft. W, 990 ft. S, NE cor. Sec. 21-21-15. Set 8⅝-in. csg. 67 ft.; cg. 1,735 ft.
Stanolind O. & G. Co.'s No. 1, 131 Dillon hrs., C SE NE Sec. 14-21-15. Ran Schmb. 9,109 ft.; T. Smkvr. L. 8,952 ft.; ran Schlum. 10,164 ft.; T. cap rock 10,148 ft.; igneous rock 11,419 ft.; T. salt 10,159 ft.; base salt 11,405 ft.; T.D. 11,419 ft.; pulled 4,245 ft. of 7-in. csg. and perf. 3,910-20 ft.; D.S.T. 3,910-20 ft.; tstd. mud; sqzd. off and reperf. 3,928-34 ft.; D.S.T. 3,928-34 ft.; tstd. mud; perf. 3,903-47 ft.; D.S.T. 3,903-47 ft.; tstd. mud; milling out 9⅝-in. csg.
Stanolind O. & G. Co.'s No. 3 Noel, Sec. 13-21-15. Set 8⅝-in. csg. 64 ft.; W.O.C.
Joe G. Strahan's No. 2 Hart, Sec. 29-21-16. Set 10-in. csg. 60 ft.; S.D. 1,800 ft.
Jack Terrell's No. 1 Welch, Sec. 3-20-16. Will set csg. 947 ft.
Alf Tillman's No. 1 Greer, 50 ft. N, 60 ft. W, SE cor. NW NW Sec. 12-20-16. Set 6⅝-in. csg. 1,360 ft.; acd. 1,520 ft.
Travis & Red Iron Drlg. Co.'s No. 2 Chandler, Sec. 5-23-15. Por. L. 6,023-56 ft. and 6,080-90 ft.; set 7-in. csg. 6,024 ft.; T.D. 6,107 ft.
Whitehurst Drlg. Co.'s No. 1 Shreveport Pet. Co., 990 ft. W, 493 ft. N, SE cor. Sec. 2-20-16. Set 10-in. csg. 80 ft.; set 7-in. csg. 1,350 ft.; acd. with 2,000 gal. and W.O.S.R.; T.D. 1,554 ft.

Claiborne Parish

Sugar Creek Synd.'s No. 1 Robinson, 690 ft. W, 570 ft. S, NE cor. NE SE Sec. 32-20-5. Set 9⅝-in. csg. 570 ft.; drlg. L.&sh. 3,400 ft.

De Soto Parish

Dewey Jaun's No. 1 Frost Lbr. Ind., 6,600 ft. SE cor. SW Sec. 14-22-3e. Set 10-in. csg. 545 ft.; T.D. 2,540 ft.; S.D.; W.O. fuel.

La Salle Parish

H. L. Hunt and Ark. Fuel Oil Co.'s No. 1 Goodpine Lbr. Co., C NW NW Sec. 18-10n-3e. Fsg. 3,030 ft.: blew out and bridged at 1,200 ft.; drld. bridge and twisted off 2,000 ft. D.S.; left wall hook in hole while fsg.; P.B. 900 ft. whpstk. 900 ft.; ran Schlmb. to 3,039 ft.; drlg. sh. 4,681 ft.

Morehouse Parish

Union Prod. Co.'s No. 1-A Tensas-Delta, 1,894 ft. W, 1,584 ft. S, NE cor. SE Sec. 8-22-4. Set 20-in. csg. 125 ft.; 16-in. csg. 712 ft.; set 10¾-in. csg. 2,448 ft.; T. salt 8,114 ft.; T.D. 10,475 ft., hd, sd.; P.B. 2,250 ft. and will comp. as Monroe gas well.

Sabine Parish

Ed Bailey's No. 1 Hale, 330 ft. NW cor. NE NW Sec. 6-7-12. S.D. 1,960 ft.
R. Chestnut's No. 1 Walden, 330 ft. SE cor. NE NE Sec. 27-10-13. Set 10-in. csg. 42 ft.; drlg. sh. 1,350 ft.
John Derryberry et al's No. 1 Manton, 330 ft. NE cor. NW SW Sec. 34-7-13. 6-in. csg. 2,450 ft.; T.D. 2,986 ft.; acd. 2,000 gal.; W.O.S.R.
Hunter Co.'s No. 3-B Sabine, C SE NW Sec. 17-7-13. Set 6-in. csg. 2,111 ft.; W. O.C.
N. B. Livingston's No. 1 Bowman Hicks, 660 ft. SE cor. SW Sec. 36-9-14. Set 10-in. csg. 110 ft.; D.S.T. 3,125-59 ft.; ¼-in. cks. T.&B.; 35 min.; rec. 150 ft. mud and S.G.; rng. 5½-in. csg. 3,508 ft., T.D.; reported S.G. 3,421-59 ft.; drlg. sd.&sh. 3,518 ft.
B. F. Phillips' No. 1 Blankenship, 330 ft. S, 202 ft. W, NE cor. SE NW Sec. 13-9-12. Reported S.G. 3,230 ft.; set 7-in. csg. 3,200 ft. (cor.); S.G. 3,216-25 ft.; T.D. 3,685 ft.; swbg. to test.
Claude H. Smith's No. 1 Whitney Corp., 330 ft. N and E, C Sec. 24-10-14. Set 10-in. csg. 42 ft.; S.D.
J. E. Stack's No. 1 Weber, 330 ft. SE cor. SW NE Sec. 8-7-13. Set 10-in. csg. 42 ft.; abd.; will not drill.
Texas Co.'s No. 3-B Glauque, 600 ft. S, 660 ft. E, C Sec. 10-7-13. Crooked hole; skd. over 60 ft. N and began 2nd hole; set 10-in. csg. 42 ft.; set 6-in. csg. 2,021 ft.; W.O.C.
J. H. Thames' No. 1 Long Bell, 330 ft. SW cor. NE SE Sec. 5-8-13. T.D. 1,708 ft.; set 7-in. csg. 1,680 ft.; did not tst. 1,708 ft.; drlg. chalk rk. 1,722 ft.
Lee Whitehurst's No. 1 Summers, 1,210 ft. N, 440 ft. W, SE cor. NE Sec. 14-7-13. Set 6-in. csg. 3,131 ft.; tstd. S.O.; R.U.C.T.; to dpn.

Union Parish

Memphis Nat. Gas Co.'s No. 2 Edwards, Sec. 11-21-3. Drlg. sd.&sh. 2,000 ft.
Southern Carbon Co.'s No. 35 Grayling, Sec. 17-21-4. Set 8-in. csg. 730 ft.; drlg. sd.&sh. 2,061 ft.
We Hope G. & O. Co.'s No. 9 Frost Lbr. Ind., Sec. 24-22-3. Set 6-in. csg. 2,082 ft.
H. L. Woods' No. 3 Union Power, Sec. 29-21-3. R.U.

Webster Parish

Hassie Hunt's No. 2 Coyle, C SW SE Sec. 22-21-10. No Hillwy. sd.; P.B.; set 5,918 ft.; T.D. 6,294 ft.; rocking with gas and tstg.
Hunt Oil Co.'s No. 1 Gains, 50 ft. NW C NW NE Sec. 30-21-9. Drlg. L.&sh. 5,691 ft.
Hunt Oil Co.'s No. 1 Jordan, 660 ft. N, 560 ft. W, SE cor. NE Sec. 31-21-10. Drlg. 250 ft.
Quad Oil Co.'s No. 2 Gray, 730 ft. NW cor. SW¼ Sec. 26-21-10. Drk.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co.'s No. 2 Boudoin, Sec. 67-12s-3e. Drlg. sh.&L. 7,944 ft.
Continental Oil Co.'s No. 1 David Meaux, Sec. 9-12s-3e. T.D. 11,359 ft.; T. gas sd. 11,318 ft.; D.S. stk.; P.B. and sidetracked; drlg. sh. 11,410 ft.
Continental Oil Co.'s No. 1 DeMary, Sec. 17-12s-3e. Drlg. sh. 10,480 ft.
Continental Oil Co.'s No. 1 Franciol, Sec. 67-12s-3e. Drlg. sh. 7,026 ft.
Continental Oil Co.'s No. 1 Motty, Sec. 18-12s-3e. Drlg. sh. 10,415 ft.

Anse La Butte—St. Martin Parish

Glassell & Glassell's No. 1 Breauy, Sec. 117-9s-5e. Drlg. sh. 5,620 ft.

Bancroft—Beauregard Parish

Republic Prod. Co.'s No. 14 Columbia Ld. Co., Sec. 21-6s-13w, T.D. 7,318 ft.; tstg.
Republic Prod. Co.'s No. 15 Columbia Ld. Co., Sec. 21-6s-13w. Loc.
Republic Prod. Co.'s No. 4 Lutcher Moore, Sec. 16-6s-13w. Cg. 10,030 ft.
Republic Prod. Co.'s No. 2 Whitman, Sec. 15-6s-13w. T.D. 7,235 ft.; 5½-in. csg. 7,320 ft.; I.P. 200 B.P.D.; ⅛-in. ck.

Barataria—Jefferson Parish

California Oil Co.'s No. 1 Danciger-State, Sec. 2-16s-23e. Loc.
California Oil Co.'s No. 1 Zeringue-Community, Sec. 2-16s-23e. Loc.
Carter, Perrin & Brian's No. 1 Ruttley Wiseman, Sec. 2-16s-23e. Drk.
Geo. Conover's No. 1 Conover Community, Sec. 22-15s-23e. Loc.
Fohs Oil Co.'s No. 1 Conzelman, Sec. 22-15s-23e. Loc.
Gulf Oil Corp.'s No. 1 Rathborne Co., Sec. 2-16s-23e. Drlg. sh. 6,225 ft.

Bateman Lake—St. Mary Parish

Texas Co.'s No. 3 State, Sec. 16s-12e. R.U.
Texas Co.'s No. 3 Wax Bayou, Sec. 21 16s-12e. Drlg. sh. 10,250 ft.
Texas Co.'s No. 4 Wax Bayou, Sec. 21-16s-12e. Drlg. sh. 8,050 ft.

Baton Rouge—East Baton Rouge Parish

Guaranty Oil Co.'s No. 2 Morgan, Sec. 65-7s-1w. T.D. 6,530 ft.; 5½-in. csg. 6,450 ft.; swbd. S.W.; S.D.
Wm. Helis' No. 4-B Duplantier, Sec. 68-7s-1w. 10¾-in. csg. 2,049 ft.
Wm. Helis' No. 7 Nelson, Sec. 36-7s-1w. Drlg. sh. 6,460 ft.
Lisbon-Iberia Oil Co.'s No. 3-A College Town Community, Sec. 68-7s-1w. Drlg. sh. 2,628 ft.
Sugarfield Oil Co.'s No. 1 Kizer Community, Sec. 46-7s-1e. 10¾-in. csg. 1,415 ft.; T.D. 7,356 ft.; perf. csg. 4,127-34 ft.; rec. S.W.

Bay St. Elaine—Terrebonne Parish

Texas Co.'s No. 3 L.L.&E., Sec. 18-22s-18e. Loc.

Bayou Blue—Iberville Parish

Superior Oil Co.'s No. 1 Schwing Lbr. Co., Sec. 74-9s-10e. Drlg. sh. 4,940 ft.

Bayou Choctaw—Iberville Parish

Standard Oil Co. of La.'s No. 12 Wilbert, Sec. 53-9s-11e. Ran 10¾-in. csg.; T.D. 5,452 ft.; sdtrkd.; T.D. 3,823 ft.; oil sd. 3,740-3,822 ft.; run csg.

Bayou Des Allemand—La Fourche Parish

Amerada Pet. Corp.'s No. 3 Gheens, Sec. 56-15s-20e. T.D. 7,563 ft.; 5½-in. csg. 7,548 ft.; I.P. 180 B.P.D.; 5/32-in. ck.; 60% S.W.

Bayou des Glaise—Iberville Parish

Humble O. & R. Co.'s No. 2-B Wilberts, Sec. 78-8s-8e. 10¾-in. csg. 2,854 ft.; drlg. sh. 4,726 ft.

Black Bayou—Cameron Parish

Shell Oil Co., Inc.'s No. 43 Watkins, Sec. 7-12s-12w. T.D. 5,519 ft.; 7-in. csg. 5,447 ft.; P.B. 8,235 ft.; perf. csg. 5,215-35 ft.; tstg.

Caillou Island—Terrebonne Parish

Texas Co.'s No. 62 State-Caillou Island, Sec. 17-23s-20e. 10¾-in. csg. 1,473 ft.; drlg. sh. 5,720 ft.
Texas Co.'s No. 63 State, Sec. 17-23s-20e. Drlg. sh. 2,730 ft.

Cameron Meadows—Cameron Parish

Magnolia Pet. Co.'s No. 26 Cameron Meadows, Sec. 21-14s-13w. Drlg. sdy. sh. 5,121 ft.

Chacahoula—La Fourche Parish

Sun Oil Co.'s No. 1 Cypress, Sec. 75-15s-15e. 13⅜-in. csg. 1,842 ft.; T. salt 6,072 ft.; T.D. 6,088 ft.; P.B. 2,100 ft.; sdtrkd.; T.D. 6,553 ft.; fsg.; sdtrkd.; T.D. 5,544 ft.; P.B. to sdtrk.; T.D. 7,271 ft.; sdtrkd.; drlg. sd.&L. 7,401 ft.
Sun Oil Co.'s No. 6 Dibert, Stark & Brown, Sec. 70-15s-15e. T.D. 7,287 ft.

Chalkley Field—Cameron Parish

Humble O. & R. Co.'s No. 1 Cameron Sch. Bd., Sec. 16-12s-6w. Loc.
Humble O. & R. Co.'s No. 1-A Sweet Lake Ld. & Oil Co., Sec. 13-12s-7w. Drlg. sh. 1,512 ft.
Humble O. & R. Co.'s No. 3 Sweet Lake Ld. & Oil Co., Sec. 8-12s-5w. Drlg. sh. 8,520 ft.
Humble O. & R. Co.'s No. 6 Sweet Lake Ld. & O. Co., Sec. 8-12s-6w. T.D. 8,457 ft.; fsg.
Shell Oil Co., Inc.'s No. 6 Hanzen, Sec. 21-12s-6w. T.D. 8,951 ft.; perf. csg. 8,910-33 ft.
Union Sulphur Co.'s No. 1 Sweet Lake Ld. Co., Sec. 13-12s-7w. Drlg. sh. 2,000 ft.

Cheneyville—Rapides Parish

S. W. Richardson's No. 9 Well, Sec. 53-1s-2e. R.U.

Creole—Cameron Parish

Superior Oil Co.'s No. 10 State-Gulf of Mexico, Twp. 15s-8w. Drlg. sh. 6,720 ft.

Darrow—Ascension Parish

Humble O. & R. Co.'s No. 28 Community, Sec. 30-10s-2e. R.U.
Humble O. & R. Co.'s No. 29 Community, Sec. 30-10s-2e. Loc.
Humble O. & R. Co.'s No. 17 Gumbel, Sec. 36-10s-2e. T.D. 8,570 ft.; P.B. 7,389 ft.; sdtrkd.; T.D. 7,503 ft.; P.B.; sdtrkd.; drlg. sh. 6,590 ft.
Kiva Oil Co. No. 1 Duplessis, Sec. 69-10s-2w. S.D. 2,523 ft.

Dog Lake—Terrebonne Parish

Texas Co.'s No. 10 State, Sec. 1-22s-15e. Drlg. sh. 6,720 ft.

Eola—Avoyelles Parish

Amerada Pet. Corp.'s No. 1 Dentetal unit, Sec. 1-2s-2e. T.D. 8,572 ft.; 5½-in. csg. 8,571 ft.
Amerada Pet. Corp.'s No. 2 Dent, Unit 2, Sec. 10-2s-2e. R.U.
Amerada Pet. Corp.'s No. 1 Giglio, Sec. 6-2s-3e. Drlg. sh. 2,412 ft.
Amerada Pet. Corp.'s No. 3 Irion, Sec. 6-2s-3e. R.U.
Amerada Pet. Corp.'s No. 1 R-S Sclater, Sec. 1-2s-2e. T.D. 8,583 ft.; 5½-in. csg. 8,582 ft.
Amerada Pet. Corp.'s No. 1 E. O. Sellers, Sec. 1-2s-2e. Drlg. sh. 6,430 ft.
Gulf Oil Corp.'s No. 1 Mouliere, Sec. 1-2s-2e. R.U.
G. W. Kennedy's No. 1 Eola Irion, Sec. 1-2s-3e. T.D. 8,570 ft.; 5½-in. csg. 8,567 ft.
S. W. Richardson's No. 8 Haas Inv. Co., Sec. 7-2s-3e. Drlg. sh. 6,160 ft.
S. W. Richardson's No. 1 A. Mizek, Sec. 7-2s-3e. T.D. 8,571 ft.; 5½-in. csg. 8,568 ft.; perf. csg. 8,505-60 ft.; I.P. 725 P.B.D.; ¼-in. ck.
Sun Oil Co.'s No. 3 Townsend, Sec. 8-2s-3e. Drlg. sh. 6,928 ft.

Fausse Point—Iberia Parish

Texas Co.'s No. 7 State, Sec. 35-11s-8e. R.U.

Gibson—Terrebonne Parish

Shell Oil Co., Inc.'s No. 8 Pelican, Sec. 35-17s-15e. Driving piling.

Golden Meadow—La Fourche Parish

Bateman Drlg. Co.'s No. 1 Harry Louviere, Sec. 9-19s-22e. T.D. 5,560 ft.; 5½-in. csg. 5,260 ft.; perf. csg. 5,150-80 ft.; tstg.

Bennett O. & R. Co.'s No. 1 Philozate, Sec. 12-19s-22e. Drlg. sh. 7,520 ft.

Berkshire Oil Co.'s No. 11 Nicol, Sec. 2-19s-22e T.D. 2,680 ft.; 7-in. csg. 2,680 ft.; comp.; no ga.

Brown & Woods' No. 1 S. Hogan, Sec. 9-19s-22e. T.D. 2,710 ft.; P.B. to 1,500 ft.; sdtrkd.; T.D. 2,672 ft.; 7-in csg. on bttm.; perf. csg. 2,650-65 ft.; would not flow; S.D.

Wm. Helis' No. 3 Gaspard, Sec. 9-19-22e. 6-in. csg. 2,655 ft.; drlg. sh. 7,130 ft.

Martex Oil Co.'s No. 1-B Rebstock, Sec. 2-19s-22e. 10¾-in. csg. 668 ft.; drlg. sh. 2,200 ft.

Texas Co.'s No. 3 La Terre Co., Sec. 1 20s-21e. Drlg. sh. 3,430 ft.

Texas Co.'s No. 4 La Terre Co., Sec. 2-20s-21e. Loc.

Texas Co.'s No. 8 L.L.&E., Golden Meadow, Sec. 78-19s-21e. 10¾-in. csg. 1,406 ft.; T.D. 7,940 ft.; 7-in. csg. 7,905 ft.; tstg.

Grand Bay—Plaquemines Parish

Gulf Oil Corp.'s No. 6-A Grand Prairie Lv. Dist., Sec. 17-20s-10e. T.D. 10,45- ft.; P.B. 10,050 ft.; 5-in. csg. 10,073 ft.; perf. csg. 10,008-22 ft.; flwd. oil and S.W.; sqzd. perf.; reperf. csg.

Texas Co.'s No. 2 State-Lookout Pass, Sec. 31-19s-19e. Drlg. sh. 5,230 ft.

Grand Lake—Cameron Parish

Amerada Pet. Corp.'s No. 3 State, Sec. 12-13s-4w. R.U.

Superior Oil Co.'s No. 6 State, Twp. 13s-4w. T.D. 8,990 ft.; run 7-in. csg.

Superior Oil Co.'s No. 7 State, Sec. 11-13s-4w. Loc.

Hackberry—Cameron Parish

Harrison & Abercrombie's No. 1 Doiron Sec. 37-12s-10w. 10¾-in. csg. 1,441 ft.

Stanolind O. & G. Co.'s No. 21-A Cameron School Bd., Sec. 16-12s-10w. Spd.

Stanolind O. & G. Co.'s No. 29-B Gulf Ld., Sec. 14-12s-10w. T.D. 8,265 ft.; abd.

Superior Oil Co.'s No. 2 Vincent, Sec. 30-12s-10w. Drlg. sd. 5,150 ft.

Texas Co.'s No. 28-B State. Drlg. sh. 6,330 ft.

Texas Co.'s No. 29-B State, Twp. 12s-9w. Drlg. sh. 3,860 ft.

Union Sulphur Co.'s No. 2 Doiron, Sec. 37-12s-10w. Drlg. sh. 7,269 ft.

Happytown—Iberville Parish

Shell Oil Co., Inc.'s No. 1 Schwing Lbr. & Shingle Co., Sec. 85-7s-8e. Loc.

Horseshoe Bayou—St. Mary Parish

Texas Co.'s No. 3 St. Mary Parish Ld. Co., Sec. 37-17s-9e. Drlg. sh. 9,730 ft.

Jefferson Island—Iberia Parish

Texas Co.'s No. 4 Jefferson Island Salt, Sec. 58-12s-5e. Drlg. sh. 7,150 ft.

Texas Co.'s No. 3 State, Twp. 12s-5e Drlg. sh. 2,430 ft.

Jennings—Acadia Parish

Glassell-Glassell's No. 8 Trusher, Sec. 47-9s-2w. T.D. 9,165 ft.; sdtrkd.; drlg. sh. 7,140 ft.

Gulf Oil Corp.'s No. 42 Arnaudet, Sec 47-9s-2w. Drlg. sh. 7,180 ft.

Shell Oil Co., Inc.'s No. 9 Community Drlg. sdy. L. 5,487 ft.

Stanolind O. & G. Co.'s No. 116 Crowley O. & M. Co., Sec. 48-9s-2w. T.D. 7,628 ft.; 7-in. csg. 7,626 ft.

Stricker-Pharis et al's No. 1 Gulf fee, Sec. 45-9s-2w. 16-in. csg. 60 ft.

Lafitte—Jefferson Parish

Texas Co.'s No. 15 Lafitte, Sec. 20-17s-24e. Drlg. 6,420 ft.

Texas Co.'s No. 4 Marrero, Sec. 21-17s-24e. T.D. 10,308 ft.; 7-in. csg. 9,902 ft. retstg.

Texas Co.'s No. 5 Marrero, Sec. 21-17s-24e. R.U.

Texas Co.'s No. 12 Rigolets Cooperative Fur Co., Sec. 28-17s-24e. Drlg. sh. 8,930 ft.

La Fourche Crossing—La Fourche Parish

Mikton Oil Co.'s No. 2 Martinez, Sec. 132-15s-17e. 11¾-in. csg. 2,687 ft.; T.D. 4,904 ft.; P.B. 4,700 ft.; sdtrk.

Lake Hermitage—Plaquemines Parish

Gulf Oil Corp.'s No. 11 La Fourche Basin Lv. Dist., Sec. 11-18s-25e. Drlg. sd.&sh. 3,510 ft.

Lake Pelto—Terrebonne Parish

Texas Co.'s No. 10 State, Sec. 7-23s-18e. Drlg. 5,010 ft.

Texas Co.'s No. 29 State, Sec. 18-23s-18e. T.D. 5,743 ft.; 7-in. csg. 5,300 ft.; tstg.

Texas Co.'s No. 30 Lake Pelto, Sec. 7-23s-18e. T.D. 5,271 ft., salt; sdtrkd.; drlg. sh. 5,237 ft.

La Pice—St. James Parish

Shell Oil Co., Inc.'s No. 1 Lebermuth & Israel. T.D. 11,402 ft.; 5-in. csg. 11,402 ft.; tstg.

New Iberia—Iberia Parish

Acadian Prod. Co.'s No. 4 E. T. Weeks, Sec. 51-12s-7e. Loc.

Wm. Helis' No. 7 Sabatier, Sec. 54-12s-7e. 7-in. csg. 2,205 ft.; T.D. 3,090 ft.; P.B. 2,995 ft.; 5½-in. csg. 3010 ft.; perf. csg. 2,872-82 ft.; P.B. 2,905 ft.; R.U. to pmp.

Wm. Helis' No. 7 J. E. Schwing, Sec. 56-12s-7e. T.D. 8,850 ft.; P.B. 7,840 ft.; T.D. 8,850 ft.; P.B. 8,025 ft.; went back into old hole; P.B. and sdtrk., T.D. 8,240 ft.; 7-in. csg. 8,200 ft.; comp. no ga.

Lisbon-Iberia Oil Corp.'s No. 6 Gulf-Schwing, Sec. 25-12s-7e. T.D. 3,780 ft.; S.D.

Texas Co.'s No. 2 Bryant, Sec. 25-12s-7e. R.U.

Texas Co.'s No. 14 Duke, Sec. 26-12s-7e. T.D. 4,969 ft.

Texas Co.'s No. 2 Hebert, Sec. 25-12s-7e. Loc.

Texas Co.'s No. 1 H. Perry Walet, Sec. 2-12s-7e, Drlg. sh. 8,416 ft.

Texas Co.'s No. 2 Smith, Sec. 71-12s-7e. Loc.

North Crowley—Acadia Parish

Humble O. & R. Co.'s No. 5 Ohlentorst, Sec. 34-8s-1e. T.D. 9,080 ft.; rec. S.W. 9,066-71 ft.; P.B. 9,074 ft.; perf. csg 9,015-20 ft.; tstd. gas and dist.; P.B. 8,520 ft.

Humble O. & R. Co.'s No. 6 Ohlenforst Sec. 34-8s-1e. T.D. 8,810 ft.; perf. csg. 8,778-88 ft.; I.P. 32 B.P.H.; ¼-in. ck

Humble O. & R. Co.'s No. 3 Stokes, Sec. 33-8s-1e. Drlg. sh. 1,520 ft.

Port Barre—St. Landry Parish

Gulf Oil Corp.'s No. 17 Wilson-Broach, Sec 4-6s-5e. T.D. 4,861 ft.; P.B. 2,061 ft.; sdtrkd.; drlg. sd.&sh. 5,387 ft.

McDannald Oil Co.'s No. 2 Futral, Sec. 20-6s-5e. T.D. 4,753 ft.; P.B. to sdtrk.

Texas Co.'s No. 27 Botney Bay, Sec. 4-6s-5e. Spd.

Potash—Plaquemines Parish

Humble O. & R. Co.'s No. 41 Orleans Sec. 14-18s-15e. T.D. 4,430 ft.; P.B.; sdtrkd. ;drlg. sh. 4,420 ft.

Humble O. & R. Co.'s No. 42 Orleans Lv. Dist., Sec. 14-18s-15e. Loc.

Quarantine Bay—Plaquemines Parish

Gulf Oil Corp.'s No. 4-A Orleans Lv. Bd. Sec. 7-19s-17e. T.D. 8,255½ ft.; tstg.

Gulf Oil Corp.'s No. 9 State QQ, Sec. 18-19s-17e. Drlg. sh.&L. 7,600 ft.

Roanoke—Jeff Davis Parish

Humble O. & R. Co.'s No. 7 Kratzer, Sec. 11-9s-4w. Drlg. sh. 5,744 ft.

Sorrento—Ascension Parish

Sorrento Synd.'s No. 2 L. L. Bernard Sec. 22-10s-4e. Loc.

South Jennings—Jeff Davis Parish

Stanolind O. & G. Co.'s No. 1 Clare E. Landry and A. A. Hebert. R.U.

Venice—Plaquemines Parish

Tide Water Asso. Oil Co.'s No. 11 Manhattan Ld. Co., Sec. 35-21s-30e. T.D 7,822 ft.; 7-in. csg. 7,805 ft.

Vermilion Bay—Iberia Parish

Texas Co.'s No. 4-B Vermilion Bay, Twp. 16s-5e. Drlg. sh. 1,620 ft.

Villa Platte—Evangeline Parish

Continental Oil Co.'s No. 2 Fontenot Deshotels, Sec. 44-3s-2e. T.D. 10,310 ft.; T. Wlx. 10,010 ft.; run 6-in. csg.; tstg.

Continental Oil Co.'s No. 5 Fontenot, Sec. 46-3s-2e. Drlg. sh. 6,870 ft.

Continental Oil Co.'s No. 4 Hattie Haas Sec. 44-3s-2e. T.D. 10,393 ft.; 6-in. csg. 10,393 ft.; perf. csg. 8,898-8,910 ft.; I. P. 164 B.P.D.; ¼-in. ck.

Continental Oil Co.'s No. 6 Opelousas, Sec. 47-3s-2e. Drlg. sh.&L. 7,930 ft.

Continental Oil Co.'s No. 3 Adam Tate Sec. 40-4s-2e. Drlg. sh. 3,400 ft.

Continental Oil Co.'s No. 2 W. L. Tate, Sec. 48-3s-2e. T.D. 10,582 ft.; tstg.

Continental Oil Co.'s No. 1 T. E. Vidrine Sec. 48-3s-2e. T.D. 10,247 ft.; perf. csg. 10,193-10,205 ft.; I.P. 425 B.P.D.; ¼-in. ck.

Continental Oil Co.'s No. 4 Vidrine, Sec. 34-3s-2e. T.D. 9,106 ft.; 6-in. csg. 9,106 ft.; I.P. 151 B.P.D.; ¼-in. ck.

Danciger O. & R. Co.'s No. 1 J. E. Vidrine, Sec. 1-4s-2e. Drlg. sh. 9,420 ft.

West Gueydan—Vermilion Parish

Magnolia Pet. Co.'s No. 4 Ferguson, Sec. 5-12s-2w. T.D. 7,161 ft.; run 7-in. csg.

West Lake Verret—St. Mary Parish

Shell Oil Co.. Inc.'s No. 4 Jeanerette. T.D. 9,778 ft., rmg.

White Castle—Iberville Parish

Shell Oil Co., Inc.'s No. 15 Wilbert. P.B. T.D. 6,570 ft.; I.P. 142 bbl., 17¾ hrs.; 16/64-in. ck.

Woodlawn—Jeff Davis Parish

Union Sulphur Co.'s No. 4 Miller, Sec. 7-9s-5w. Drlg. sh. 8,650 ft.

Union Sulphur Co.'s No. 2 Norton, Sec. 12-9s-6w. Loc.

Union Sulphur Co.'s No. 1 Trimble, Sec. 7-9s-5w. Drlg. sh. 2,212 ft.

Woodlawn Oil Corp.'s No. 1 Hebert, Sec 1-9s-6w. T.D. 9,543 ft.; 7-in. csg. 9,170 ft.; perf. csg. 9,189-93 ft.; flwd. S.W. and dist.; well flwd. 100% S.W.; S.D.

S. LOUISIANA WILDCATS

Allen Parish

Housh & Thompson's No. 1 Ind. Lbr Co., Sec. 1-4s-5w. 10¾-in. csg. 1,600 ft.; drlg. sh. 10,022 ft.; T. Sparta 9,448 ft.

Assumption Parish

Falcon-Seaboard Drlg. Co.'s No. 1 Alex Simoneaux, Sec. 43-12s-13e. R.U.

Shell Oil Co., Inc.'s No. 1 C. S. Eellis, Sec. 9-16s-14e. T.D. 11,561 ft.

Avoyelles Parish

Joe F. Beit's No. 1 Thompson & Katz Sec. 23-2n-5e. T. Wlx. 6,137 ft.; T.D. 6,552 ft.; abd.

Beauregard Parish

Atlantic Ref. Co.'s No. 1 Lutcher Moore Lbr. Co., Sec. 13-5s-12w. Drlg. sh. 350 ft.

Atlantic Ref. Co.'s No. 1 Lutcher Moore, Sec. 22-3s-11w. Loc.

Atlantic Ref. Co. No. 1 Rice Ld. & Lbr. Co., Sec. 22-3s-11w. Loc.

Atlantic Ref. Co.'s No. 1 D. A. Whitmer, Sec. 26-3s-11w. R.U.

Cameron Parish

Phillips Pet. Co.'s No. 1 Miami Corp., Sec. 11-14s-6w. Drlg. sh. 8,950 ft.

Superior Oil Co.'s No. 1 State, Calcasieu Lake, Twp. 14s-9w. Loc.

Iberia Parish

Plymouth Oil Co. et al's No. 1 Lynch McHugh, Sec. 13-12s-10e. 10¾-in. csg 2,519 ft.; T.D. 8,655 ft.; rmg.

Jeff Davis Parish

Continental Oil Co.'s No. 1 Niblett, Sec 1-11s-5w. 13⅜-in. csg. 2,085 ft.; drlg. sh. 7,215 ft.

H. M. Naylor's No. 1 Acadia Dev. Co., Sec. 12-10s-2w. Loc.

La Fourche Parish

Gulf Oil Corp.'s No. 1-B Bowie Lbr. Co., Sec. 69-15s-19e. Bldg. rd.

Humble O. & R. Co.'s No. 1 Caldwell Sugars, Inc., Sec. 115-14s-15e. Bldg. rd.

Tide Water Asso. Oil Co. No. 1 Delta Farms, Inc., Sec. 6-17s-23e. T.D. 11,850 ft.; P.B. T.D. 11,810 ft.; perf. csg. 11,780-11,800 ft.; rec. 30 ft. of dist., 400 ft. drlg. mud; P.B. 11,325 ft.; perf. csg. 11,290-11,305 ft.; rec. S.W.

Plaquemines Parish

California Co.'s No. 1 Delta Minerals, Sec. 2-15s-24e. Loc.

Gulf Oil Corp.'s No. 1-D Buras Lv. Dist., Sec. 6-23s-31e. 9⅝-in. csg. 8,204 ft.; drlg. sh. 10,022 ft.

Rapides Parish

S. W. Richardson's No. 1 Hillyer-Edwards, Sec. 21-1s-3w. R.U.

Smith & Aarnes' No. 1 Eota Realty Co., Sec. 12-4n-3e. Drk.

St. Landry Parish

Pure Oil Co. et al's No. 1 E. M. Boagni, Sec. 41-6s-4e. 10¾-in. csg. 1,276 ft.; drlg. sh.&sd. 6,404 ft.

St. Martin Parish

Wm. Helis' No. 1 Rycade Oil Co., Sec 33-9s-7e. T.D. 8,899 ft.; sdtrkd. 7,393 ft.; drlg. sh. 7,558 ft.

Terrebonne Parish

Barnsdall Oil Co.'s No. 1 Nelson, Sec. 2-21s-11e. 10¾-in. csg. 2,767 ft.; drlg. sh. 10,340 ft.

Texas Co.'s No. 4 State, Coon Point, in Lake Caillou, Twp. 23s-14e. Loc.

Vermilion Parish

La. Ld. & Expltn Co.'s No. 1 Walter White hrs., Sec. 17-15s-1e. R.U.

Texas Co.'s No. 1 Vermilion Par. Sch. Bd., Sec. 16-13s-4e. T.D. 9,923 ft.; 7⅝ in. csg. 9,918 ft.; T.D. 10,595 ft.; P.B. 10,250 ft.; perp. to sdtrk.

TEXAS

Week Ended January 20

GULF COAST FIELDS

Anchor—Brazoria County

Humble O. & R. Co.'s No. 1 R. H. Carr. Blk. 62. Drlg. sh. 5,230 ft.

Humble O. & R. Co.'s No. 1 Crockett, J. de Jesus Valderas Sur. Loc.

Humble O. & R. Co.'s No. 1 Galznik & Taylor, J. de Jesus Valderas Sur. 9⅝-in. csg. 6,953 ft.; drlg. sh. 8,312 ft.

Glenn McCarthy's No. 1 Gelaznik, Valderas Sur. Drlg. sh. 730 ft.

Glenn McCarthy's No. 1 Neidringhaus, J. Bradley Sur. 13⅜-in. csg. 926 ft.; drlg. sh. 4,312 ft.

Glenn McCarthy's No. 1 Ida M. Salmon and John Muma, Geo. Robinson Sur. 9⅝-in. csg. 6,860 ft.; T. Frio 8,820 ft.; T.D. 10,756 ft.; perf. csg. 9,820-24 ft.; flwg. 5 bbl. dist. per hr.; 21/64-in. bttm.-hole ck.; ¾-in. ck. on top; tstg.

Old Ocean—Brazoria County

Harrison & Abercrombie's No. 8 Armstrong, Polly & Chance Sur. Drlg. sd. 4,726 ft.

Harrison & Abercrombie's No. 7 Bernard River Ld. Dev. Co., C. Breen Sur. Drlg. sh. 9,212 ft.

Harrison-Abercrombie's No. 3 Larsen, C. Breen Sur. Drlg. sh. 7,212 ft.

Stanolind O. & G. Co.'s No. 1 Giles, C Breen Sur. 9⅝-in. csg. 7,047 ft.; T.D. 10,600 ft.

Sun Oil Co.'s No. 3 Borsodi, C. Breen Sur. 13⅜-in. csg. 1,515 ft.; 9⅝-in. csg. 7,020 ft.; T.D. 10,520 ft.; 7-in. csg. on bttm.

Sun Oil Co.'s No. 4 McCampbell, C. Breen Sur. 13⅜-in. csg. 1,505 ft.; drlg. sh.& L. 4,859 ft.

Seabreeze—Chambers County

Sun Oil Co.'s No. 1 Samuelson & Whitney, T.&N.O. Sur. 131. Drlg. sh. 3,116 ft.

Garwood—Colorado County

Davis & Co., Inc., No. 1 J. R. McLane. I.&G.N. Sur. 41. T.D. 10,536 ft.; set 814 ft. of 5-in. lnr. on bttm.; perf. csg. 10,330-62 ft., 10,394-10,410 ft.; swbg.

Big Creek—Fort Bend County

Merrimac Oil Corp.'s No. 1 George, B. Wickson Sur. (SW. Flank). Spd. and S.D.

Rosenberg—Fort Bend County

Humble O. & R. Co.'s No. 1 Skripka, C. N. Simpson Sur. Drlg. sh. 2,330 ft.

Caplen—Galveston County

Sun Oil Co.'s No. 2 Zinn & Forman, S. F. Hughes Sur. 9⅝-in. csg. 1,988 ft. T.D. 7,550 ft.; 5½-in. csg. on bttm.

League City—Galveston County

Phillips Pet. Co.'s No. 1 Brittnacher, S. F. Austin Sur. T.D. 10,348 ft.; P.B. 9,135 ft.; perf. csg. 8,712-17 ft.; flwg. oil and S.W.

Phillips Pet. Co. No. 1 Dr. O. Patton (1 mi. E of production). Perf. csg. 9,177-97 ft.; flwd. S.W.; sqzd. perf.; C.O.

Phillips Pet. Co.'s No. 2 J. S. Rice est. J. M. Perry & Austin Sur. T.D. 11,411 ft.; fsg.

Phillips Pet. Co.'s No. 3 Stewart Title Guaranty Co., S. F. Austin Sur. R.U.

Phillips Pet. Co.'s No. 4 Stewart Title Guaranty Co., S. F. Austin Sur. 10¾-in. csg. 3,520 ft.; 7⅝-in. csg. 9,510 ft.; T.D. 11,270 ft.; well blew out; running wild, making gas and dist.; well brought under control; flwg. gas, dist., and S.W.

Clear Lake—Harris County

Humble O. & R. Co.'s No. 2-D Humble-West, G. B. McKinstry Sur. Cg. 5,870 ft.

Bammel—Harris County

H. M. Harrell's No. 1 Graves, C. Walters Sur. Loc.

Friendswood—Harris County

Humble O. & R. Co.'s No. 33 Beamer, T. Choate Sur. Drlg. sh. 6,043 ft.

Humble O. & R. Co.'s No. 22 West Prod. Co., L. Hemenway Sur. T.D. 6,045 ft.; W.O.C.

Lovells Lake—Jefferson County

Humble O. & R. Co.'s No. 18 Broussard, C. Hillebrandt Sur. T.D. 7,790 ft..; 5½-in. csg. 7,780 ft.

Humble O. & R. Co.'s No. 3-B Steinhagen, A. O. Donnell Sur. 9⅝-in. csg. 1,153 ft.; drlg. sh. 5,780 ft.

Humble O. & R. Co.'s No. 1 W. O. Turner, Wm. Carr Sur. Drlg. sh. 6,980 ft.

Stanolind O. & G. Co.'s No. 2-A Steinhagen, Wm. Carr Sur. T.D. 7,818 ft.; perf. csg. 7,719-21 ft.; tstg.

Esperson—Liberty County

General Crude Oil Co.'s No. 9 Davis, D Kokernot Sur. T.D. 8,314 ft.; well blew out, caught fire, cratered.

General Crude Oil Co.'s No. 7-B Esperson, A. McNeil Sur. T.D. 7,860 ft.; P.B. and sdtrkd.; T.D. 7,660 ft.; sdtrkd.; drlg. sh. 7,100 ft.

Hull—Liberty County

Gulf Oil Corp.'s No. 115 Phoenix Dev. Co., J. Devore Lge. (SE flank deep test). 9⅝-in. csg. 5,904 ft.; T. salt 8,113 ft.; T.D. 8,164 ft., salt.

Martha—Liberty County

Stanolind O. & G. Co.'s No. 2 Flowers, I.&G.N.R.R. Sur. Drk.

Stanolind O. & G. Co.'s No. 1 J. D. Ross, I.&G.N. Sur. 7. R.U.

Segno—Polk County

J. K. Dorrance's No. 5-A Wing, I.&G.N. Sur. 15. Drlg. 500 ft.

Gulf Oil Corp.'s No. 4 Quinn, A. Morales Sur. R.U.

Gulf Oil Corp.'s No. 24 Wing, I.&G.N. Sur. 14. Drlg. sh. 7,907 ft.

Gulf Oil Corp.'s No. 28 Wing, I.&G.N. Sur. 15. R.U.

Humble O. & R. Co.'s No. 20-BX Kirby Lbr. Co., P. Garcia Sur. T.D. 8,195 ft.; W.O.C.

Spurger—Tyler County

Republic Prod. Co.'s No. 30 fee, N. Hurd Sur. T.D. 7,710 ft.; comp.; no ga.

Republic Prod. Co.'s No. 31 fee, N. Hurd Sur. Cg. 7,636 ft.

Hilje—Wharton County

Texas Co.'s No. 2 Peters, E.T.R.R. Sur., Sec. 101. Loc.

GULF COAST WILDCATS

Brazoria County

Fabriquze et al's No. 1 Freeport Sulphur, Stephen F. Austin Sur. (Bryan Mound). M.I.M.

Hamman Explin. Co.'s No. 1-B Darrington State Prison Farm, F. Bingham Sur. Loc.

D. M. Hill's No. 1 Max Bader, Wm. Smeathers Lge. Loc.

Glenn McCarthy's No. 1 E. W. K. Andrau, H.T.&B. Sur. 5. 10¾-in. csg. 3,512 ft.; T.D. 10,591 ft.; W.O.C.

Glenn McCarthy's No. 2 Houston Farm Dev. Co., J. Perry & E. Austin Sur. 7. 10¾-in. csg. 3,492 ft.; T.D. 10,500 ft.; run csg.

Titanic Oil Co.'s No. 2 S. E. Allen, J. G. and W. McNeil Sur. R.U.

Chambers County

Geo. Anderson et al's No. 1 Veruna Lawrence, W. D. Smith Sur. Drlg. sh. 6,786 ft.

Colorado County

Cockburn Oil Corp. No. 1 R. W. Ferrs, H. Chrisman Sur. Loc.

Fort Bend County

Fred Browning's No. 1 Kroescher, W. Bartlett Sur. 10¾-in. csg. 1,128 ft.; T. D. 8,011 ft.; 7-in. csg. 8,195 ft.; sd. 8,126-29 ft.; perf. csg. 8,181-85 ft.; flwg. wash wtr. through ⅛-in. ck.; T.P. 950 lb.; C.P. 300 lb.

H. C. Cockburn's No. 1 G. W. Burkett, Bundieck Sur. Loc.

Magnolia Pet. Co.'s No. 1 G. H. Huntington, Henry Scott Sur. T. Ckfld. 7,556-60 ft.; T.D. 8,698 ft.; perf. lnr. 8,662-72 ft.; rec. S.W.; perf. csg. 8,246-50 ft.; flwg. 2 bbl. dist. per hr.; 9/64-in. ck.; press. dropped; reperf. csg. 8,248-54 ft.; flwg. dist.; flwd. 17 bbl. dist.; ⅛-in. ck.; T.P. 175 lb.; C.P. 575 lb.

Ray Ranger's No. 1 Sugarland Industries, John Foster 2½ Lge. S.D. 7,731 ft.

Temple Hargrove et al's No. 1 Sugar Ld. Ind., A. Alcorn Sur. Spd.

Galveston County

Continental Oil Co.'s No. 1 Lobit-Cherardi, Perry & Austin Sur. T.D. 9,839 ft.; prep. to sdtrk.

Standard Oil Co.'s No. 1 State, Sec. 234. 10¾-in. csg. 2,001 ft.; drlg. plug.

Sun Oil Co.'s No. 1 State, Sec. 178. Dredge canal.

Harris County

T. A. Carlton Oil Co.'s No. 1 J. J. Sweeney, G. W. Eaton Sur. R.U.

Cities Service Oil Co.'s No. 1 Perry V. Cook, Wm. Slayer Sur., Sec. 60. R.U.

Gulf Oil Corp.'s No. 1 H. H. Roberts, A. Roberts Sur. T.D. 7,583 ft., S.D.

N. W. Hunter et al's No. 1 Green's Bayou Homesites, S. C. Hiroms Sur. 10¾-in. csg. 810 ft.; drlg. sh. 3,750 ft.

R. A. Irwin et al's No. 1 C. H. Grisbee, John Picture Sur. Drlg. sh. 5,255 ft.

Martin Thompson's No. 1 Kate Fuchs, J. Doswell Sur. R.U.

Jackson County

H. J. Porter et al's No. 1 Jackson Co. State Bnk., E. Durbin Sur. R.U.

Wheelock & Collins' No. 1 Four Way ranch, Young Coleman Sur. T.D. 6,515 ft.; abd.

Jefferson County

Fidelity O. & Roy Co.'s No. 1 J. J. Craigen, J. E. Broussard Sur. Loc.

Merrimac Oil Corp.'s No. 1 State, Tr. 72, 50 ft. due E of Harwell's abd. hole W.O.; R.U.

Rowan Drlg. Co.'s No. 1 Toney Tortorlas, H.&T.C. Sur. Drlg. sh. 6,020 ft.

Liberty County

Hebert & Smith's No. 1 W. E. Boyt, H. &T.C.R.R. Sur. R.U.

Matagorda County

Gulf Stream Oil Co.'s No. 1 G. W. Ziprian, Luke Lessassier Sur. Drlg. sdy. sh. 3,386 ft.

Providence Oil Corp.'s No. 1 E. Strawbridge, J. W. E. Wallace Sur. Loc.

Texas Gulf Prod. Co.'s No. 1 Gulf Tex. Oil Co., Ira Ingram Sur. Drk.

Van M. Vincent's No. 1 J. F. McNabb Est., E. R. Wightman Lge. Loc.

Montgomery County

H. C. Cockburn et al's No. 1 Bender. Montgomery Co. Sch. Ld.and De Crow Sur. Loc.

Continental Oil Co.'s No. 1 Bender est., Montgomery Co. Sch. Ld. Sur. Spd.

David B. MacDaniel's No. 1 Hattie O. Baldwin, Walker Co. Sch. Ld. Sur. 10¾-in. csg. 1,230 ft.; T.D. 8,900 ft., est.; D.S. stk.

Sturm & Womack's No. 2 Foster est, Abraham Pevehouse Sur. Cg. sh. 6,974 ft.; cd. sd. gas and dist. 6,758-6,838 ft.

West Conroe Oil Corp.'s No. 1 R. L. Caffee, H. N. McDillon Sur. Drlg. sh. 3,833 ft.

San Jacinto County

Harrison & Abercrombie's No. 1 Lockin Wm. Hays Sur. Drlg. sh.&L. 7,987 ft.

Waller County

Cities Service Oil Co.'s No. 1 P. V. Cook, H.&T.C. Sur. 60. R.U.

Hunter & Mayos et al's No. 1 Humble fee, Wm. Hooper Sur. Drlg. sh. 4,370 ft.

Washington County

Mount Selman Oil Co. No. 1 Fritz Fuelberg, W. Lightfoot Sur. S.D. 4,510 ft.

Wharton County

O. C. Garvey et al's No. 1 Stockton, S. P. Middle Sur. Loc.

J. F. Hutchins' No. 2 Borden, E. M. Cox Sur. A-14. T.D. 5,500 ft.; 5½-in. csg.

Dr. T. M. Neal No. 1 fee, Elisha Flack 4,840 ft.

S. W. TEXAS WILDCATS

Aransas County

Continental Oil Co.'s No. 1 St. Charles Co., R. D. Blassman Sur. 18⅝-in. csg. 290 ft.; drlg. sh. 8,480 ft.

Atascosa County

John Durst's No. 1 Wright, Edw. Morris Sur. Loc.

Red Bank Oil Co. et al's No. 1 J. P. Pratt, Francisco de La Garza Sur. 46. T.D. 2,386 ft.; run csg.

Bastrop County

C. R. Franklin's No. 1 Oscar McDonald, Martha Barker Sur. Drlg. 1,306 ft.

Bee County

Humble O. & R. Co.'s No. 1 W. T. Ruckman, Thos. Maucha Sur. T.D. 2,808 ft.; abd.

Mills Bennett Prod. Co. and Anderson-Prichard Oil Co.'s No. 2 Robinson, J. M. Uranga Sur. (Wlx. test, West Tuleta field). Loc.

Union Prod. Co.'s No. 56 Ray, T. Hanson Sur. (Pettus field); Wlx. test. Spd.

Fred Wood's No. 1 C. A. Mauldin, J. Poitevent Sur. 1. T.D. 3,600 ft.; abd.

Bell County

G. P. Shelton et al's No. 1 Nelson, Michael Griffin Sur. S.D. 1,208 ft.

Bexar County

L. Beauchamp et al's No. 1 J. J. Brown R. F. Shield Sur. 19. Loc.

Heller Pet. Co.'s No. 1 Wildmann, Juan Sanchez Sur. 34. S.D. 448 ft.

Joe Noake's No. 1 San Antonio Sub. Irrg. Farm, W. Miller Sur. 180. S.D. 250 ft.

Philtop O. & G. Co.'s No. 1-A Cassin, Fernando Rodriquez Sur. S.D. 2,124 ft.

J. A. Tarver's No. 1 Florence Lam, Manuel de Luna Sur. 3. 6⅝-in. csg. 1,205 ft.; T.D. 1,692 ft.; cd. bkn. sh. 1,638-92 ft.; S.S.O.; bailed est. 10 bbl. oil P.D. before sanding up; S.D.

J. A. Tarver et al's No. 1 Joseph Leonard, Manuel de Luna Sur. 3. R.U.

Blanco County

E. L. Nixon's No. 3 Crist, John McClenechen Sur. 94. S.D. 1,075 ft.

Burleson County

H. Y. Barnett's No. 1 Giesenschlag, J. W. Hollingsworth Sur. Drlg. 710 ft.

Caldwell County

Kean & Williamson's No. 1 E. E. Rector, J. Roberts Sur. S.D. 120 ft.

Calhoun County

Coronado Corp. No. 1 K. Welder, Hidalgo Sur., 3 mi. SE Seadrift. "Tight well"; reported to be tstg.; 5½-in. csg. 9,750 ft.; perf. csg. 9,500-9,600-9,700 ft.; rec. S.W.; sqzd. perf.

De Witt County

Atlantic Ref. Co.'s No. 1 Pearl Conwell, Chas. Lockhart Sur. Drlg. sh. 3,536 ft.

Duval County

J. B. Blanchard et al's No. 1 J. Ruiz, G. Ruiz Sur., Sec. 136. T.D. 3,330 ft.; rmg.

W. L. Catlin et al No. 1 Louis Escapule, J. Poitevent Sur. 73. R.U.

Continental Oil Co.'s No. 1-C Clara Driscoll, Santa Rosalia gr. T.D. 3,748 ft.; 6-in. csg. 2,378 ft.; rec. S.W.; D.S.T. 2,320-25 ft.

Hiawatha O. & G. Co.'s No. 1-A Herberger, Santos Flores gr. Cg. 5,865 ft.

Landreth Prod. Co.'s No. 1 Caballero, J. Poitevent Sur. 281. M.I.M.

H. D. Rogers' No. 1 Rossen, R. F. Neeley Sur. 48. S.D. 1,200 ft.

Shell Oil Co., Inc.'s No. 1 F. Lopez, J. S. Givens Sur. 372. T.D. 5,015 ft.; abd.

Stewart & Nye's No. 1 W. P. Peters, B. S.&F. Sur. 791. Cg. 2,520 ft.

Falls County

J. Shaunfield's No. 1 Barganier, J. M. Graham Sur. Bda. L.; S.S.O.; T.D. 1,188 ft.; recmtd. csg.; W.O.; cmt. failed to hold.

Frio County

Holland Oil Co.'s No. 1 Anna Witting, Dan T. Price Sur. 6. Drlg. 4,496 ft.

Guadalupe County

A. J. Hollifield's No. 1 A. J. Day, Jas. Hinds Sur. T.D. 2,837 ft.; 7-in. csg. 2,357 ft.

Knute Evjen et al's No. 1 W. C. Brawner, J. D. Pickens Sur. S.D. 2,394 ft. 5½-in. csg. 2,300 ft.; reacd.

F. D. Spratt's No. 1 Wm. Zuchi, Claiborne Rector Sur. 38. S.D. 710 ft.

Wellington Oil Co. of Dela.'s No. 1 Wells. H.&T.C.R.R. Sur. 5. Top A.C. 3,397 ft.; cg. for Edwards L. 3,723 ft.

Hidalgo County

Brinkocter Oil Co.'s No. 1 Daskam hrs. of Miguel Cano, Porc. 45. R.U.

Gulf State Oil Co.'s No. 2 Cardinas, San Salvador del Tule gr. 16-in. csg. 157 ft. drlg. sh. 4,700 ft.

Humble O. & R. Co.'s No. 1 T. A. Ogg, Rio Bravo subd. Cg. 6,429 ft.

Jim Hogg County

Daubert & Achning's No. 1 A. Vela, Joseph Odom Sur. 572. S.D. 698 ft.

DeLange & Rowe's No. 1 R. A. Walters, Casa Blanca gr. Loc.

Goldruss Drlg. Co.'s No. 2 Gutierrez, Tyler Tap. R.R. Sur. 163, S.D. 3,855 ft.

Henshaw Bros. and Mosser's No. 1 San Miguel, S.K.&K. Sur. 219. Drlg. sh. 4,630 ft.

Humble O. & R. Co.'s No. 2 C. F. Mestena O. & G. Co., C.&M.R.R. Sur. Sec. 389. Drk.

Humble O. & R. Co.'s No. 3 Mestena O. & G. Co., Sec. 388, Fowler & Rankin subd., Santa Rita pasture. T.D. 6,270 ft.; abd.

C. A. Nibert et al's No. 1, Yeager Sur. 20. S.D. 1,316 ft.

Republic Nat. Gas Co.'s No. 1 Robt. Adams, G.H.&H.R.R. Sur. 103. Drlg. sh. 3,560 ft.

Jim Wells County

Austin Pet. Co. No. 1 H. M. Reed (8 mi. NW Orange Grove), J. Poitevent Sur. Cmtd. surf. pipe 190 ft.; S.D. 210 ft.

DeLange & Rowe's No. 1 R. A. Wolters, Casa Blanca gr. Drlg. sdy. sh. 2,405 ft.

Henshaw Bros. et al's No. 1 San Miguel, S.K.&K. Sur., Sec. 219. Drlg. sh. 4,610 ft.

H. H. Howell's No. 1 Clara Driscoll, La Anima Sola gr. T.D. 6,515 ft.; abd.

R. K. Taylor's No. 1 M. H. Reed, J. Poitevent Sur. Spd.

Gus Tsesmelis et al's No. 1 Garcia hrs., La Anima Sola gr. R.U.

Karnes County

Clyde Eckols' No. 1 J. M. Newberry, Carlos Martinez Sur. T.D. 3,002 ft.; 5½-in. csg. 3,002 ft.; perf. csg. 2,942-48 ft.; tstg. gas and some oil.

Gar Oil Co.'s No. 1 R. L. Barnett, Alex C. Hunter Sur. S.D. 2,350 ft.

Gar Oil Co.'s No. 1 L. T. Lyssy, Andres Hernandez Sur. Drlg. 2,160 ft.

Kendall County

C. M. Dewey's No. 2 Seidensticker, R. Davis Sur. No. 20. S.D. 835 ft.

Kleberg County

Humble O. & R. Co.'s No. 1 O. J. Mork, Rincon de Santa Gertrudis gr. Drlg sh. 2,673 ft.

Skelly Oil Co.'s No. 1 State, Laguna de Los Olmos gr., Tr. 385. Driving piling.

La Salle County

Louis Yeager's No. 1 fee, A.B.&M. Sur. 53. T.D. 729 ft.; abd.

Lee County

Fred Pederson et al No. 1 Brown, David Hudson Sur. T. Glen Rose L. 6,600 ft.; S.D. 7,322 ft.

Live Oak County

H. F. Baker's No. 1 Herring, Stephen Hays Sur. S.D. 1,450 ft.

E. M. Jones' No. 1 West, Lot 400, Blk. B, of West subd. Loc.

Moore Dev. Co.'s No. 1 fee, R. W. Fant Sur. 238. R.U.

McMullen County

Cities Service Oil Co. and Continental Oil Co.'s No. 2-B Lowe, A. J. Martin Sur. T.D. 1,612 ft.

W. C. McBride, Inc.'s No. 2 Nueces Ld. & Lvstk. Co., E. W. Gemmel Sur. 91. Drlg. 1,115 ft.

Roger Putnam's No. 1 Lucy Claunch, M. Hely Sur. 5. 10-in. csg. 200 ft.; drlg. 1,260 ft.

Nueces County

H. J. Porter et al's No. 1 A. R. Knetig, DeLores A. & I. Co. Sur. 145. 10¾-in. csg. 508 ft.; drlg. sh. 4,850 ft.

Fred W. Shield et al's No. 1 Meinholdt, M. L. De Herrera gr. 10¾-in. csg. 1,185 ft.; T.D. 7,510 ft.; abd.

Southern Minerals Corp.'s No. 1 J. S. Jolly, M. L. de Herrera gr., Sec. 29. T.D. 7,510 ft.; abd.

Southern Minerals Corp.'s No. 1 Robt. Whitleff, Rincon De Corpus Christi gr. Drlg. sh. 6,271 ft.

Refugio County

C. L. Norsworthy's No. 1 B. J. Fox, Jas. Fagan Sur. 20-min. D.S.T. 4,729-37 ft.; rec. 360 ft. oily mud; 540 ft. S.W.; drlg. sh. 6,510 ft.

San Patricio County

Nueces Royalty Co.'s No. 1 Ragsdale, G. T. Taber Sur. 10¾-in. csg. 750 ft.; T.D. 6,509 ft.; abd.

Southern Minerals Corp.'s No. 1 Sam Sparks, John Bowen Sur. Cg. 5,765 ft.

Fred Wood et al's No. 1 C. E. Hart, Wm G. Burgess Sur. Cg. 4,990 ft.

Starr County

Magnolia Pet. Co.'s No. 2 Yzaquirre, La Sal Colorado gr. T.D. 6,814 ft.; abd.

Sun Oil Co.'s No. 1 Rodriguez, Santa Teresa gr. T.D. 4,876 ft.; rmg.

Victoria County

Colton & Colton's No. 1 W. C. Buckholtz, F. G. Hidalgo Sur., Lot 27. 10¾-in. csg. 710 ft.

Mayo and Renwar Oil Co.'s No. 1 Bayer, Garcia Sur. T.D. 6,485 ft.; circulating; well tried to blow out.

Mayo, Thompson Drlg. Co.'s No. 1 Ragsdale, V. Garcia Sur. Cg. 4,450 ft.

L. L. Smith's No. 1 Carolina Stubbs est., R. Manchola Sur. Drlg. sd. 3,231 ft.

Webb County

G. W. Bascom's No. 1 Geo. Adami, H.& G.N.R.R. Sur. 333. Loc.

Circle Oil Co.'s No. 1 W. R. Hughes, G. C.&S.F.R.R. Sur. 1527. S.D. 2,612 ft.

O. W. Killam's No. 9 Bruni, J. V. Borego gr. T.D. 1,663 ft.; abd.

Tide Water Asso. Oil Co. No. 7 Bruni, Blk. 7, M. Arispe gr. (deep test Bruni field). T.D. 8,959 ft.; well blew out; hole bridged; stk. D.S.; prep. to P.B. and test approx. 5,600 ft.; perf. D.P. 5,636-45 ft. and 5,621-31 ft.; tstd. dry; sqzd. off; S.D.

Williamson County

H. C. Lefors' No. 1 H. J. Priesmeyer, Jehu Bevil Sur. 56. S.D. 1,107 ft.

Taylor Ref. Co.'s No. 1 C. F. Hurta, P. Coursey Sur. T.D. 1,440 ft.; abd.

WEST TEXAS WILDCATS

Andrews County

Richmond Drlg. Co. and T. F. Hunter's No. 1 University, 660 ft. N and E lines of Sec. 21, Blk. 11, University Sur. Loc.

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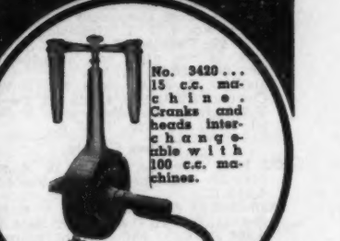

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Crane County

Gulf Oil Corp.'s No. 5 M. B. McKnight, Sec. 1, Blk. 21-B, P.S.L. Sur. Drlg. 5,706 ft.

Gulf Oil Corp.'s No. 1-K University, 330 ft. N and E lines, Sec. 2, Blk. 31, University Sur. M.I.M.

Gulf Oil Corp.'s No. 12 Waddell, Sec. 30, Blk. 26-B, P.S.L. Sur. 12-in. 532 ft.; S.O. 3,215-20 ft.; drlg. 3,535 t.

Crockett County

Continental Oil Co.'s No. 1 Todd unit, SW¼ Sec. 30, Blk. W.X., C.G.&S.F. Sur.; Ordovician test. Topped Simp. at 6,040 ft.; sul. wtr. at T.D. 7,010 ft.; P.B. to 6,620 ft.; P.B. 6,330 ft.; C.O. and tstg. gas, little oil.

Continental Oil Co.'s No. 1-32 Todd, 1,980 ft. S and W lines, Sec. 32, Blk. WX, G.C.&S.F. Sur. Prep. test 1,220 ft.

Continental Oil Co.'s No. 2 Todd, 1,980 ft. S and W lines of Sec. 29, Blk. W. X., G.C.&S.F. Sur. Straightening hole 472 ft.

Moore Bros.' No. 1 Henderson, Sec. 51. Blk. O.P., G.C.&S.F. Sur. Drlg. 820 ft.

Stanolind Oil & Gas Co.'s No. 4 Todd, Section 30, Blk. W.X., G.C.&S.F. Sur., 330 ft. S of Continental's deep test. Gas sd. 1,194-1,217 ft.; prep. comp. from 1,217-25 ft.; 69 bbl. daily, off. ga.

Stanolind O. & G. Co.'s No. 7 Todd-A, 990 ft. from S line, 330 ft. from W line, Sec. 67, Blk. UV, G.C.&S.F. Sur. Drlg. 940 ft.

Ector County

M. A. Grisham et al's No. 1 R. B. Cowden, 600 ft. from N and E lines, Sec. 4, Blk. 45, Twp. 1n (deep test), T.&P. R.R. Sur. M.I.M.

I. T. I. O. Co.'s No. 1 Johnson, Sec. 34, Blk. 43, Twp. 1s, T.&P. Sur. Flwd. 50 B.O. in 20 min.; tstg.

Landreth Prod. Corp. and Shell Oil Co., Inc.'s No. 1 J. L. Johnson, Sec. 43, Blk. 43, Twp. 1s, T.&P. Sur. Swbd. 21 B.O. 14 hrs. after acd. at 4,264-76 ft.; test est. 800 ft. O.I.H.

Stanolind O. & G. Co.'s No. 1 W. F. Cowden, SW¼ Sec. 4, Blk. 43, Twp. 1n, T.&P. Sur.; deep-lime test. T. Yates sd. 2,790 ft.; drlg. 4,385 ft.

Gaines County

Oil Well Drlg. Co.'s No. 1 R. E. Sikes, Sec. 10, Blk. 25-A, P.S.L. Sur. Drlg. 4,010 ft.

Stanolind O. & G. Co.'s No. 1 T. S. Riley, Sec. 11, Blk. H, D.&W. Sur. Shot 4,762-4,864 ft.; C.O.; bailed 1 bbl. hourly before shot; T.D. 4,864 ft.; swbg. out 30 ft. cavings.

Hockley County

Geo. P. Livermore's No. 1 R. D. Glimp, Sec. 8, Blk. X, P.S.L. Sur. Swbd. 110 B.O. in 12 hrs.; tstg.

Irion County

W. S. Kelly's No. 1 Yates, Conrad Poppe Sur. 730. S.D. 3,455 ft.

Loving County

J. E. Whitesides' No. 1 fee, Sec. 24, Blk. 76. S.D. wtr. 30 ft.

Mitchell County

Ewing & Hanes' No. 1 G. I. Grable, Sec. 195, Blk. 3, H.&G.N. Sur.; 1,800-ft. test. S.D. 30 ft.

N. V. Hilburn's No. 1 E. T. Strain, Sec. 82, Blk. 97, H.&T.C. Sur. Drlg. 205 ft.

Sinclair Prairie Oil Co.'s No. 1 E. E. Erwin, Sec. 1, Blk. 5, H.&T.C. Sur. Drlg. 2,512 ft.

Pecos County

R. L. Baker's No. 1 White & Baker, Sec. 86, Blk. 194, G.C.&S.F. Sur. Drlg. 175 ft.

Humble O. & R. Co.'s No. 1 Young, Sec. 33, Blk. 10, H.&G.H. Sur. Drlg. 3,635 ft.

B. McCandless and General Crude Oil Co.'s No. 1 Virginia W. Crockett, Sec. 5, Blk. 110, T.C.R.R. Sur. T. Ellenburger 4,401 ft.; tstg. est. 6,000,000 cu. ft. gas after acd.; rng. tbg.; T.D. 4,479 ft. est. 4,000,000 cu. ft. gas and 365 B.O. P.D.; tstg.

Phillips Pet. Co.'s No. 1 Sarah Byrne, Sec. 114, Blk. 11, H.&G.N. Sur.; lost hole; skd. 50 ft. N.; drlg. 1,400 ft.

Skelly Oil Co.'s No. 1 J. S. Masterson (Ordovician test), Sec. 101, Blk. 10, H. &G.N. Sur. Drlg. 2,915 ft.

H. C. Walker's No. 1 Alva Reed, Sec. 20 Blk. 10, H.&G.N. Sur. W.O.C. 1,425 ft.

Reeves County

T.A.T. Oil Co.'s No. 1 U. G. Orenderff, Sec. 10, Blk. 59, P.S.L. Sur. Drlg. 1,405 ft.

Scurry County

Coffield & Guthrie's No. 1 Reiter, Sec. 155, Blk. 97, A.T.&T.C. Sur. P.B. 2,990 ft.; C.O. after 2nd shot 3,500 ft.

Terrell County

E. M. Thomasson's No. 1 Bates, Sec. 31. Blk. 1, H.&G.N. Sur. S.D.O. 1,760 ft.

Tom Green County

Dan Short's No. 1 J. G. Davidson, 2,161 ft. from SL, 2,493 ft. from NW cor. L. P. Moore Sur. S.S.O.&G. 2,660-65 ft.; S.D.O. 2,935 ft.

Ward County

Gulf Oil Corp.'s No. 5 Wristen, Sec. 18, Blk. 5, H.&T.C. Sur.; scheduled Ordovician test. Drlg. on jnk. 2,791 ft.

Magnolia Pet. Co.'s No. 2-43 Sealy, Sec. 43, Blk. F, G.M.M.B.&A. Sur. W.O. 2,952 ft., T.D.; making 69,000,000 cu. ft. gas; incr. amt. oil; perf. lnr. 2,960-96 ft.; P.B. 2,925 ft.; W.O.C.

Merry Bros. & Perini's No. 1 Bird Hayes, Sec. 148, Blk. 34, H.&T.C. Sur. S.D.R. 2,527 ft.

Yoakum County

L. E. Hults' No. 1 Willard, 1,980 ft. from E line, 660 ft. from N line, Sec. 805, Blk. D, Gibson Sur. C.&P.

Sloan & Zook and T. N. Sloan's No. 1 J. E. Fitzerald, Sec. 22, Blk. D, Gibson Sur., extreme NE cor. of county. 7-in. csg. 4,812 ft.; S.D.R. 5,652 ft.

TEXAS PANHANDLE

Sherman County

Hagy, Harrington & Marsh's No. 1 W. Freeman, Sec. 46, Blk. 42, G.H.&H. Sur. P.B. 2,909 ft.; comp. 15,000,000 cu. ft. gas.,

E. C. TEXAS WILDCATS

Bowie County

W. E. Neill's No. 1 Lewis Fort, L. Peters Sur., 2½ mi. NE Hooks. Drlg. 930 ft.

Camp County

Harry Moss' No. 1 Joe Venters, S. Wright Sur., 3 mi. SE Leesburg. O.W. D.D.; O.T.D. 5,710 ft.; R.U. to dpn. to 7,500 ft.; drlg. 7,260 ft.

Falls County

A. H. Bell's No. 2 Garrett. J. Sanches Sur., NE of Lott. Bailing 1,260 ft.

Henderson County

W. R. Manning's No. 1 Rowe & Baker, J. T. Childers Sur., 6 mi. SW Mabank. Loc.

Houston County

J. C. Wynne et al's (Shell Oil Co., Inc.) No. 1 G. E. Dorsey, M. Salias Sur., 2½ mi. S of Percilla; E 102 ac. of tr.; 10,000-ft. test. D.S.T. 8,541-76 ft.; rec mud cut with gas and oil; fag. 9,884 ft.

Kaufman County

W. H. McGee's No. 1 Rutland Savings Bk., John Baker Sur., 2¼ mi. NE of Tulosa. R.U.R.

Limestone County

Peyton Bros.' No. 1 Harris, P. Varella Sur. P.B. to 4,495 ft.; drlg. 4,950 ft.

Murray Samuell and Zephyr Oil Co.'s No. 2 Cannon Barron, NE part of 320-acre tract in W. G. McKenzie Sur, half mile NE of pool opener. Drlg. 4,812 ft.

J. J. Tyrell's No. 1 A. G. Easterling, J. L. Chavert Sur., 11 mi. E of Groesbeck. Drlg. 3,620 ft.

Nacogdoches County

Melrose Oil Co.'s No. 1 C. N. Wilson, J. Hall Sur., 250 ft. S line and 1,530 ft. E line of survey, 10 mi. SE of town of Nacogoches. S.D. 50 ft.

Navarro County

Guy Sitton's No. 2 R. D. Fleming, John Harris Sur., 450 ft. E of No. 1 dry hole. Bailing 1,625 ft.

W. H. Warren's No. 1 L. Grey, E. Powers Sur., 9 mi. SE of Kerems. M.I.M.

Smith County

Shell Oil Co., Inc.'s No. 1 H. Campbell, P. Lively Sur., 1½ mi. N of Chapel; 9,500-ft. test. T. Paluy 5,533 ft.; T. Glen Rose 5,818 ft.; T. Tr. Pk. 8,247 ft.; S.D. 8,481 ft.

Sun Oil Co.'s No. 1 E. B. Huddle, Wm. Dickerson Sur., 2 mi. S of discovery dist. producer in Chapel Hill area Temp. S.D. to rep. mud hose at 5,728 ft.

NORTH TEXAS WILDCATS

Archer County

Continental Oil Co.'s No. 1 L. F. Wilson, NE cor. SW¼ Sec. 20, H.&T.C. Sur. (1½ mi. E of Hull-Silk). Loc.

Baylor County

Hall-Jordan Oil Co.'s No. 1 D. E. Blackman, SE NE Sec. 28, Blk. 3, H.&T.C. Sur. Drlg. 1,680 ft.

Clay County

Shell's No. 1 Davis, Sec. 93, J. H. Belcher. O.W.D.D.; S.D. 5,136 ft.

Shell Oil Co., Inc.'s No. 1 M. L. Henderson, 6,000-ft. test, in Blk. 2605, T. E.&L. Sur. S.S.O. 3,419-36; S.S.O. 3,507-19 ft.; S.S.O. 3,573-85 ft.; S.S.O. 3,655-57 ft.; T.D. 3,824 ft.; P.B. 3,570 ft.; cmtd. 4½-in. 3,494 ft.; drlg. plug; swb. 53 B.O. and 60 bbl. S.W.; rng. Dale wtr. surv. to determine source of S.W.

Foard County

Foster Pet. Corp.'s No. 1 E. M. Gamble, 4,500-ft. test; E. 180 ac. of S½ Sec. 13, Blk. A, H.&T.C. Sur. Had gas sd. 2,300-29 ft.; est. 5,000,000 cu. ft.; T.D. 3,417 ft.; S.D. to run csg. and test gas sd. 2,300-29 ft.; perf. 2,305-09 ft.; 5 shots; blowing est. 5,000,000 cu. ft. gas and spray S.W.

Jack County

Buffalo Oil Co.'s No. 1 Riddle, S. L. Clark Sur.; Abst. 1944, 3,100-ft. test. Drlg. 2,847 ft.

J. B. Cooper and Paul P. Steed's No. 1 Mathis, J. H. Neamith Sur., Abst. 1562. R.U.R.

W. L. Forbes et al's No. 1 N. W. Davis, B.B.&C. Sur. S.D. 1,500 ft.

Hanlon-Buchanan, Inc.'s No. 1 A. T. Smith, NE cor. Sec. 2, S.P.R.R. Sur., Abst. 2175. Drlg. 2,515 ft.

Montague County

W. H. Gant and Continental's No. 1 J. L. Brown, Sec. 58, E.T.R.R. Sur. 6⅝-in. 6,843 ft.; brkn. sdy. L. S.O. 6,843 ft.; treat. 8,000 gal. acd.; test showed O.& G. 7,036-56 ft.; T.D. 7,333 ft.; rng. Schlumberger.

W. B. Omohundro's No. 1 Seay, Sec. 32, Blk. 4, H.&T.C. Sur. (5,500-ft. test). Drlg. 3,520 ft.

Sinclair Prairie Oil Co.'s No. 1 W. B. Howard, W. Wallace Sur., Abst. 841 5,000-ft. test). Drlg. 2,705 ft.

Texas Co.'s No. 1 J. P. Martin, 990 ft. S and E lines of Martin area in C. Barnes Sur., Abst. 48 (2 mi. E of Benton-Holmes field). Drlg. 2,875 ft.

Wilbarger County

H. G. Gay's No. 1 A. S. Ross, 1,320 ft. EL, 660 ft. SL, Sec. 65, Blk. 15, H.& T.C. Sur. Drlg. 1,500 ft.

Young County

Cosden Pet. Corp.'s No. 1 W. E. Steele est., NE part of R. M. Burton Sur., Abst. 8, 7 mi. SE Graham. 4,200-ft. test; tight hole. 6⅝-in. 3,734 ft.; tstg. 3,835-85 ft.; est. 10,000,000 cu. ft. gas.

K. R. March's No. 1 Ed. Burton, NE cor. Blk. 99, J. A. True Sur., Abst. 1640, 4 mi. SE Graham, 4,250-ft. test. Drlg. 3,260 ft.

A. T. Strong et al's No. 1 E. C. Stovall, Sec. 2946, T.E.&L. Sur. (4,800-ft. test). Drlg. 3,925 ft.

James Toughy et al's No. 1-C F. Akers, W. McClure Sur., Abst. 183, S.S.G. 3,994-4,005 ft.; S.O. 4,005-20 ft.; est. 4,000,000 cu. ft. gas; tstg.

EAST TEXAS

(Border Counties)

Marion County—Rodessa

Ark. Fuel Oil Co.'s No. 1 G. H. Barnes, 948 ft. S, 1,055 ft. E, NW cor., 283-ac. tr., Richardson Sur. Set 5½-in. csg. 6,087 ft.; W.O.C.

WEST CENTRAL TEXAS DISTRICT

Brown County

Wilson Oil Co., Inc., No. 1 M. Bowden, Sec. 138, W. E. Gilliland Sur. Drlg. by tools 3,130 ft.

Callahan County

J. L. Reeves' No. 1 N. A. Estes, SW¼ Sec. 4; Blk. 8, S.P. Sur., 2½ mi. south Bowles pool. Loc.

Coleman County

E. B. Tinsley and C. C. Campen's No. 1 W. Webb, H. Odle Sur. 178. Drlg. 810 ft.

Eastland County

Butler & Horne and E. J. Keough's No. 1 L. Waters, Sec. 83, Blk. 3, H.&T.C. Sur. R.U.

J. L. Reeves' No. 1 J. V. Parker, NW part of Wm. Van Norman Sur. Fag. 3,077 ft.; S.S.O. 3,019-41 ft.;

W. A. Stiles et al's No. 1 H. F. Duncan, Sec. 10, Blk. 2, H.&T.C.R.R. Sur. Pltg.

Dobbs Oil Corp.'s No. 1 Thomasson, S. H. Key Sur., 330 ft. from N and 846 ft. from E lines of 80-acre tract. M.I.M.

Dobbs Oil Corp.'s No. 1 Mrs. R. L. Poe, 1,320 ft. from S and E lines of SE¼ Sec. 37, Blk. 3, H.&T.C. Sur. Loc.

Erath County

T. Gray's No. 1 C. Young hrs., NW cor. of Stephen Smith Sur., Abst. 682, &T.C. Sur. (6,000-ft. test). R.U.

J. F. Morissey et al's No. 1 R. J. Sikes, J. Hargrave Sur., 6 mi. N of Stephenville, 5,000-ft. test. Drlg. 1,170 ft.

Fisher County

Montour Prod. Co.'s No. 1 Taggart, 1,980 ft. W and S lines, Sec. 184, Blk. 2, H. &T.C. Sur. (6,000-ft. test). R.U.

Haskell County

K. N. Nowels' No. 12 M. S. Pardue, SW cor. Sec. 1, S.F.I.W. Sur., 4½ mi. east Stamford. S.S.O. 2,235-52 ft.; S.S.O. 3,399-3,410 ft.; prep. acidize 3,395-3,420 ft.; est. 25 B.O.P.D., natural.

Jones County

Danciger Oil & Ref., Inc.'s No. 1 P. V. Nelson, SE¼ Sec. 186, B.B.B.&C. Sur., 4 mi. SE Stamford. Drlg 1,980 ft.

J. E. Farrell's No. 1 F. B. Reid, NW¼ Sec. 31, D.&D. Sur. (3,500-ft. test). Spdg.

Pantex Oil Co.'s No. 1 Sylvester, Sec. 21, Blk. 4, H.&T.C. Sur. Drlg. 3,190 ft. No report.

W. F. Snebold's No. 1 J. Jeffreys, Sec. 7, Blk. 15, T.&P. Sur., 1½ mi. W of Sandy Ridge pool. Drlg. 3,020 ft.

Runnels County

J. E. North's No. 1 J. W. Reese, Day Ld. & Cattle Co., 2½ mi. S of McCullen. W.O.C. 2,030 ft.

San Saba County

C. D. Lane's No. 1 J. E. McCoury, SW A. Deitz Sur., Abst. 45 (Ellenburger test). Drlg. 1,025 ft.

Stephens County

Grace & Woods' No. 1 Joe Beaty, NE cor. W. M. Bales Sur. 1110 (semiwildcat). Drlg. 3,300 ft.

Pitzer & West and Brazos-Young Oil Corp.'s No. 2-B N. G. Price, SE cor. E½ SW Sec. 67, B.A.L. Sur. Prep. set csg.; saturation in lime from 3,510-14 ft.

Throckmorton County

Normandie Oil Corp.'s No. 1 Travis Co. Sch. Lds., Sec. 37, Abst. 254, 5,500-ft. test. Drlg. 1,410 ft.

MISSISSIPPI

Copiah County

Triangle Drlg. Co.'s No. 1 W. W. Broome, 153 ft. SW cor. SW SE Sec 1-10n-8e. T.D. 15 ft.; arng. resume drlg. Feb. 1.

Hinds County

Crescent Oil Mill's No. 1 fee, E side Mill St., fire zone No. 3, City of Jackson, Sec. 3-5-1e. Set 8⅝-in. csg. 822 ft.; T.D. 2,465 ft. Set 5½-in. csg. on btm. S.D., cold weather.

Itawamba County

G. C. Grasty et al's No. 1 Ky. Lbr. Co., 1,320 ft. E, 660 ft. S, C Sec. 7-10s-10e. Twisted off D.S.; skd. 24 ft. S and spd.; set 10¾-in. csg. 170 ft.; S.O. 1,500 ft.; T. Trenton L. 1,690 ft.; T.D. 1,794 ft.; bailed dry, resumed drlg. 1,797 ft.

Jefferson Davis County

F. E. Courson et al's No. 1 L. J. Bailey, 330 ft. SW cor. SW NE Sec. 4-6n-18w. Set 8⅝-in. csg. 932 ft.; cd. 2,853-61 ft.; rec. 6-in. sd.; gas odor. Drlg. sh. & L. 3,450 ft.

Kemper County

M. R. Crabb et al's No. 1 W. T. Caldwell, NW SE Sec. 25-9n-15w. 10¾-in. csg. 86 ft.; set 6-in. csg. 1,320 ft.; T.D 1,640 ft.; acid. with 1,000 gal.; S.D. W.O.

Monroe County

Willmut G. & O. Co.'s No. 1 Roberts NW¼ Sec. 18-13s-17w. D.S.T. 2,410-30 ft.; Amory gas zone, dry; drlg. hd. gr. L. 2,907 ft.

Pike County

S. R. Crouch's No. 1 Cupit, 360 ft. N, 660 ft. W, SE cor. NE SW Sec. 25-2r-7e. Set 6-in. csg. 729 ft. Drlg. sh. 1,712 ft.

Sharkey County

Eureka Pet. Co.'s No. 1 W. H. Cooper, 1,980 ft. S, 660 ft. W NE cor. Sec. 13-14n-6w. M.I.R.

Ralph E. Fair's No. 1 W. B. Houston est., NE NE Sec. 12-10n-7w. Set 10-in. csg. 854 ft.; T. Sparta 710 ft.; T. Wlx. 1,555 ft.; cd. 3,434-89 ft., 3,683-99 ft., and 3,716-28 ft.; no show; T.D. 4,060 ft. D. & A.

Yazoo County

Harry Hanbury et al's No. 1 Brooks, SW Sec. 17-10-2. Loc.

Hill & Hill et al's No. 1 Kinkead Plantation, 1,796 ft. SE cor. NE¼ Sec. 31-11-3. 7⅝-in. csg. 128 ft. W.O.C. 133 ft.

Hassie Hunt's No. 2 J. C. Johnson, C NE SE Sec. 11-10-3. Set 7-in. csg. 4,781 ft.; perf. 4,378-98 ft. Comp. 500 b.p.d. ¼-in. ck. T.P. 260 lb. Set 7-in. csg. 4,870 ft. T.D. 4,892 ft.

Hassie Hunt's No. 3 Johnson, C NW SE Sec. 11-10-3, drlg. 65 ft.

Hassie Hunt's No. 1 Ida Fair, C NE SW Sec. 13-10n-3w. Drlg. sticky sh. 3,180 ft.

Edgar Johnson's No. 3 Brumfield, C SW SE Sec. 2-10-3, Spdg.

Jones & O'Brien Bros.' No. 1-C Stevens, C SE NE Sec. 11-10-3. R.U.

Jones & O'Brien's No. 2-C Stevens, C NE NE Sec 11-10-3. Drlg. bl. sh. 3,783 ft.

Robt. P. Lake's No. 1 Exum Est., C SW NE Sec. 13-11-2, Loc.

Nelson Bros.' No. 1 S. S. Stoner, C SE NW Sec. 2-11-5w. Loc.

Union Prod. Co.'s No. 2 Perry, C NE NW Sec. 24-10-3. Set 16-in. csg. 65 ft.; 10¾-in. csg. 1,518 ft.; T.D. 4,698 ft.; Woodruff sd. 4,653-74 ft. Set 7-in. csg. 4,647 ft. and ran 4,654 ft. 2½-in. tbg. Washed 2½ hrs. Well failed to kick off. Swbd. and washed in; comp. est. 450 b.p.d. 24/64-in. ck. C.P. 250 lb. T.P. 80 lb.

Union Prod. Co.'s No. 3 Perry, C NW NE Sec. 24-10-3. R.U.

Union Prod. Co.'s No. 1 Stevens, C NW NW Sec. 13-10-3. O.W.W.O., O.T.D. 6,112 ft. P.B. 4,973 ft.; set 1st retainer 1,820 ft.; perf. 4,808-10 ft.; 2nd retainer 4,898 ft.; recomp. 750 B.P.D.; 50% S.W.; ¼-in. ck.; went dead; may abandon.

Union Producing Co.'s No. 3 Stevens, C NE NW Sec. 13-10-3. 10¾-in. csg. 1,466 ft.; T.D. 4,503 ft. Woodruff sd. 4,473-86 ft. Set 7-in. csg. 4,470 ft. Washed well; would not flow. Prep. swab.

Union Prod. Co.'s No. 4 Stevens, C SE SW Sec. 12-10-3. Set 10¾-in. csg. 635 ft.; drlg. 3,447 ft. sh.

Union Prod. Co.'s No. 6 Stevens, C NE NE Sec. 13-10-3. Loc.

Union Prod. Co.'s No. 9 Stevens, C SW SW Sec. 24-10-3. R.U.

Union Prod. Co.'s No. 5 Woodruff, C SW NW Sec. 13-10-3. Drk.

Whigate Oil Co.'s No. 1 Robertson, 330 ft. NW cor. Sec. 20-10-2. Loc.

Personal Paragraphs

JOHN M. LOVEJOY, president of Seaboard Oil Co., New York City, was in Dallas, Tex., last week for conferences with the local representatives.

L. L. WALKER, president of Mid-Union Drilling Co., of Tulsa, was in Wichita Falls, Tex., preparatory to setting up offices in that city to care for the company's expanding operations in the North Texas district.

BASIL MOSS, formerly scout for Magnolia Petroleum Co. in Southeast New Mexico, at Hobbs, has been transferred to Mattoon, Ill., as scout in that area. His duties in New Mexico have been taken over by HOWARD JENNINGS, formerly in the company's Dallas office.

W. H. ROUZER, JR., formerly engineer for Phillips Petroleum Co. at Odessa, Tex., last week assumed the position of chief engineer for the K.M.A. Pressure-Maintenance Association, with offices in Wichita Falls. M. E. McCULLOUGH, superintendent for Fain-McGaha Oil Corp., is chairman of the association, which was organized last November.

R. T. HERNDON, vice president of Texas Co. of California and in charge of the company's sales activities on the Pacific Coast, has been made national sales executive, with headquarters in New York. He is succeeded in Los Angeles, Calif., by D. E. BEATON, long connected with the company in various executive capacities in Chicago.

JOHN E. ADAMS, district geologist for Standard Oil Co. of Texas at Midland, Tex., last week was elected president of the West Texas Geological Society to succeed BERTE R. HAIGH, geologist for University Lands at Midland. DANA M. SECOR, district geologist for Skelly Oil Co., was named the new vice president and FRED F. KOTYZA, also of Midland, secretary-treasurer.

K. B. FOREMAN, formerly assistant agent for Gulf Oil Corp., at Tyler, Tex., has been promoted to zone agent in charge of the company's operations in 40 East Texas counties. He is a former vice president of the National Oil Scouts Association, and succeeds JOE T. GOODMAN, who was recently named assistant to C. R. Minor, vice president of Gulf Refining Co., and transferred to Shreveport, La.

JOHN T. HAYWARD, chief engineer, Barnsdall Oil Co., was named commodore of the Sequoyah Yacht Club, Tulsa, at the annual banquet meeting at the Mohawk Country Club. Other new officers are EVERETT VAN WINKLE, of Geophysical Research Corp., vice commodore; CHARLES YORK, Carter Oil Co., treasurer; and MARY ELLEN HOLT, of Seismograph Service Corp., secretary. FRED S. WHITAKER, of Omar Refining Co., outgoing commodore, becomes a member of the executive committee. W. G. GREEN, of Seismograph Service Corp., active member of the club, spoke briefly at the banquet.

DR. J. A. L. HENDERSON has returned to London after a survey in the Canadian fields.

GEORGE MOODY, vice president, Mid-Continent Petroleum Corp., has been confined to St. Johns Hospital, Tulsa, by illness.

T. P. HOFFER, who recently resigned as vice president of the D. D. Oil Co. of Mission, Tex., is remaining in the lower Rio Grande Valley area, to engage in independent operations, mainly in Starr and Hidalgo counties.

FREDERIC MELLEN, geologist who discovered the Tinsley structure which yielded Mississippi's first commercial oil last year, will be honored by the Tinsley Betterment Association at a celebration to be held January 28.

COL. W. T. KNIGHT, president of Consolidated Oil Co., was awarded a trophy for philanthropic services at the annual banquet of the Wichita Falls, Tex., Chamber of Commerce held in that city last week. Mr. Knight provided clothing for several hundred needy children in Wichita Falls last Christmas.

N. C. McGOWEN, president, R. H. HARGROVE, vice president and other officers and department heads of the United Gas Pipe Line Co. and affiliated companies addressed 367 employes and officers in the annual sales meeting of the Dallas, Wichita Falls, Tex., and Shreveport, La., districts at Kilgore, Tex., last week. National advertising of Gulf Coast industrial facilities was stressed during the meeting.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

E. C. Lufkin, president of the Texas Co., expressed gratification in Tulsa for the favorable decision handed down by the Atoka District Court on a suit alleging the Texas Co. was affiliated with the Standard Oil Co. The suit was instituted by Oklahoma's attorney general and had it been successful, the Prairie Oil & Gas Co. and the Gulf Pipe Line Co. would have been brought into court in similar suits.

The Prairie Pipe Line Co. is organizing gangs for the rush construction of a pipe line from Carrolton, Mo., to Wood River, Ill. Installation of the new line will relieve the pressure on Mid-Continent producers.

20 YEARS AGO

It is feared that lack of a dependable sand pay and the carelessness of operators with their money will cause the profit from development of the Ranger, Tex., field to vanish but there is still hope a profitable field will be found in the state.

Price of $5.25 per barrel for Pennsylvania Grade crude will cause a drilling boom in the eastern district but the severity of the winter will postpone activity until spring.

10 YEARS AGO

The Oklahoma Corporation Commission ordered a reduction in the allowable from 625,000 bbl. daily during January to 600,000 bbl. daily during February. Potential of the state's field was estimated to be nearly 1,000,000 bbl. daily.

E. B. Reeser, president of the Barnsdall Corp. and the American Petroleum Institute; W. G. Skelly, president of Skelly Oil Co., and Frank Phillips, president of Phillips Petroleum Co., called on Pres. Herbert Hoover and congressional leaders in an effort to avert threatened price reductions.

C. B. BAILEY, of the lubricating oil department of Standard Oil Co. of Louisiana, Baton Rouge, is on a business trip to New York.

R. L. BLAFFER, chairman of the board of directors of Humble Oil & Refining Co., Houston, Tex., is spending several weeks in Arizona.

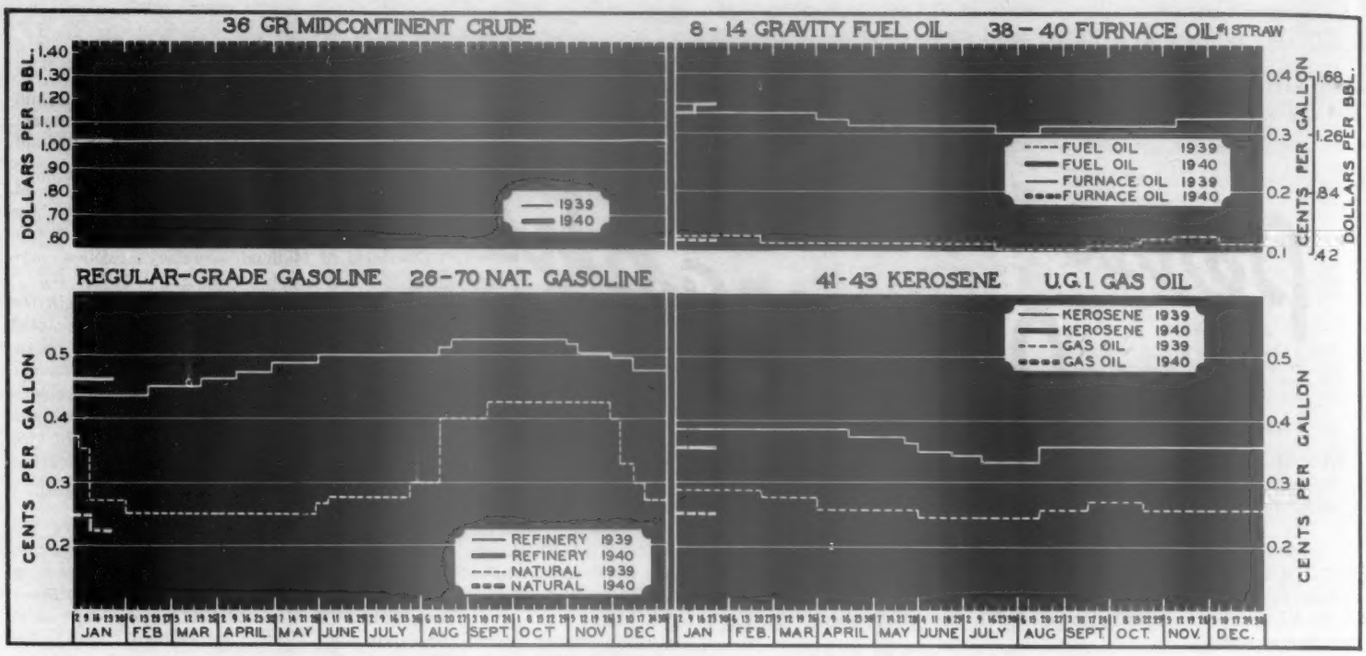
T. G. PRICE, Carter Oil Co. scout, has been transferred from southern Oklahoma to Jackson, Miss., as a senior scout on special mission.

MAJ. JAMES H. DOOLITTLE, aviation director of the Shell Oil Co., Inc., St. Louis, Mo., has been elected president for 1940 of the Institute of Aeronautical Sciences.

C. V. MILLIKAN, chief engineer of Amerada Petroleum Corp., Tulsa, recently made an inspection tour of South Arkansas fields, accompanied by A. M. CROWELL, director, Arkansas Oil and Gas Commission.

H. F. B. GARDENER, of Shell Oil Co., Inc., with offices in Shanghai, China, and D. S. GOLDIE, of Standard Vacuum Oil Co., also with offices in Shanghai, are spending vacations simultaneously in southern California.

J. R. KEANE has been reelected president of the Western Asphalt Association and J. R. PEMBERTON and RUSH M. BLODGET have been elected vice presidents. C. W. POWELL was elected treasurer and H. P. FRANCKELTON was elected secretary-treasurer. Directors of the association are S. M. GRIFFITH, A. F. BROUGH, G. R. DALEY, Mr. Powell and Mr. Keane.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Furnace Oils Lead Group 3 Refinery Market; Painful Week for Gasoline

By T. F. SMILEY

FURNACE OILS led the Group 3 refinery market this week without serious competition. Gasoline was heavy, and the naturals were sorely in need of a helping hand. Even the lubricants and wax, though enjoying a sturdy market, were not exhibiting the dash and vim that marked them in recent months.

Biting cold weather started buyers scurrying to suppliers for heating oils in almost all areas. Refiners were swamped with orders. "We're 15 days behind in our shipments," said one sales manager. "I don't know how I'm going to get out of this jam. We haven't got the material and can't get it."

Although all grades of furnace oils were in brisk demand, the No. 2 straw was particularly sought, and supplies were especially hard to unearth. Forecasts of continued low temperatures throughout the Middle West pointed to an increasingly active market.

Scarcity Predicted

Some refiners expressed belief that there would be a definite scarcity of heating oils before spring. Stocks of gas oil and distillates in the middle western area dropped 373,000 bbl. in the week ended January 13, and a more precipitate decline is looked for in the coming weeks. Taking the edge off these expectations is the fact that immense quantities of heating oils are stored in the St. Paul-Minneapolis area, which affords Oklahoma refiners their most important market for these products. The material was transported by barge up the Mississippi River last summer, when prices were a half cent or more less than they are now. Quotations are not likely to rise swiftly until a substantial dent has been made in these Minnesota stocks. Nevertheless, predictions that a tight market lies ahead for the heating oils are received with respect in all quarters.

Gasoline limped through another painful week. The blizzards that put new life into the furnace-oil market were just another worry for the motor fuels. They drove cars off the highways and sent more gasoline to storage tanks already full.

Nevertheless, there was a disposition among refiners to adhere to predictions made last week that Group 3 gasoline prices would go no lower. There was an increasing number of refiners who refused to grant concessions, declaring they were tired of selling at prices that did not cover the cost of manufacture and would close their plants rather than shave quotations any farther. There was no apparent increase in surplus inventories.

Jobber buying of gasoline was at a low ebb. One explanation was that jobbers will do no unnecessary purchasing at a time when prices look as though they might possibly go lower. Also they are expecting a reduction in freight rates that would be of advantage to them.

Lubricating oils, especially bright stocks, were holding their ground well, although the tone of the market was slightly easier. The cost of ocean transportation of packaged lubricating oils from New Orleans, La., to France is now $1.75 a hundredweight compared with a rate of about 40 cents under normal conditions. Contract provisions are much more drastic than before the European war started. The refiner must make his contract for specific tonnage, and if he does not have the material ready to put on board at the date named he must pay the freight anyway.

Naturals in Difficulty

Natural gasoline, already 2 cents below what it commanded just before it began its current decline, showed no signs of ability to recover any of its lost ground. Although cold weather increases the proportion of natural used in making motor fuel, it cuts the consumption of the motor fuel at the same time.

Wax was slightly softer under the influence of an easier eastern market, rather than because of any letup in demand for the Mid-Continent product. The major part of wax output is going abroad, though a few Mid-Continent refiners cater especially to domestic trade.

Refined Oil Market Barometer

Fuel oil strong in all areas east of California, but weak in that state. Suppliers in northern Atlantic seaboard and midwestern regions are limiting even contract shipments. Lubricating oils apparently have reached their peak and are exhibiting softness for first time since last August. Gasoline weak generally. Naturals continue downward trend. Heavy industrials steady. Wax firm.

MID-CONTINENT. Heating oils firm. Gasoline lifeless. Naturals soft. Lubricants steady.

EAST COAST. Fuel oils tight; little quoted in spot market. Gasoline irregular.

GULF COAST. Gasoline extremely weak. Fuel and burning oils vigorous. Kerosene firm.

PENNSYLVANIA. Gasoline soft. Kerosene stronger. Bright stocks weak. Wax holding.

CALIFORNIA. Market irregular and soft on all products. Fuel oil especially weak.

CHICAGO. Fuel oil strong. Gasoline weak and inactive. Heavy industrial oil firm.

Fuel-Oil Demand Soars in East With Prices Decidedly Firm

By H. STANLEY NORMAN

NEW YORK, Jan. 22.—Demand for fuel oil in the northeastern section of the country reached a new peak for the winter last week and prices were decidedly firm. Practically all suppliers are restricting shipments, even to contract customers, and only a few are in position to quote for spot delivery.

Tightness of the fuel-oil market applied to all grades of burning oil. Average temperatures remained well below the freezing point last week and dipped to a low of about 10° in New York. There were no changes in general quotations for fuel oil. Most refiners are asking $1.50 per barrel for Bunker C and for No. 6 industrial fuel. One supplier was reported still offering heavy fuel oil at Baltimore at $1.25 per barrel, but the price at Philadelphia, New York, and Boston is $1.50 a barrel.

Most suppliers are asking a minimum of 5 cents per gallon for No. 2 fuel oil, and kerosene is reported reasonably firm at 5¼ to 5.6 cents per gallon.

Gasoline consumption has been reduced to a low level in this section because of weather conditions, but the tank-car market is holding at unchanged levels. Tanker charter rates have leveled off, but remain extremely high and this cost of transportation is playing an important part in holding up the motor-fuel market along the Atlantic seaboard. Tanker owners are asking from 71 to 74 cents per barrel for movement of light fuel oil from the Gulf to points north of Cape Hatteras. Quotations from owners for gasoline cargoes ranged from 65 to 68 cents and for kerosene from 68 to 71 cents per barrel. For movement of light crude-oil cargoes the asking price ranges from 53 to 56 cents and for heavy crude or fuel tanker owners are asking 59 to 62 cents per barrel. These tanker prices are practically unchanged from those existing for the past 2 or 3 weeks and indications are that the ceiling has been reached. Boats are still scarce, however, and there is a possibility that their rates might move slightly higher, particularly if the export demand should encounter the stimulation that some anticipate in the early part of the spring.

There appears to be some easing in the Pennsylvania lubricating oil market and one refiner was reported last week to have dropped his quotations for bright stock 2 cents a gallon. This was the first important break reported in the Pennsylvania market since last August when an advance set in that doubled prices on bright stock and neutrals. Prices for 25-pour test bright stock now range from 30 to 34½ cents and 10-pour test oil is offered at a range of 32 to 36 cents. The wax market remains unchanged with most suppliers asking 6¾ cents per pound for 124-126 A.m.p. scale.

The Gulf Coast cargo market remains extremely dull and gasoline was available from most sources ⅛ to ¼ cent below prices existing the previous week. Motor fuel of 65 octane was freely available at 5¾ cents per gallon and most market observers considered that this price could be shaded on a firm offer. Quotations on the Gulf range from 5⅞ to 6¼ cents for 68-70 octane and the 72-74 grade was offered at prices ranging from 6 to 6¼ cents per gallon. Gulf Coast refiners were reported offering No. 2 fuel oil at 3¾ to 4 cents per gallon, with probably a majority on the high side of the market. Supplies were limited in volume and some eastern distributors reported increasing difficulty in locating stocks.

Gasoline was slightly lower in the western Pennsylvania refining district last week. Refiners were willing to sell the U. S. Motor grade at 4½ cents per gallon. Some had been asking up to 5 cents a gallon for this material during the first half of January, but slack demand and mounting stocks have combined to pull the quotations down.

Tank-car quotations for gasoline in New York ranged from 6½ cents to 7½ cents per gallon depending upon octane specifications. Barge delivery can be had at prices of 0.2 to ½ cent below the tank-car quotations.

There have been no changes for the past 2 weeks in the retail market for gasoline in New York, New England, and Pennsylvania.

Diesel oil is in a strong position. Quotations for the marine trade range from $2.10 to $2.20 per barrel and the price for tank-car delivery to shore plants in the New York district is 5.1 cents per gallon.

Gulf Coast Markets

HOUSTON, Tex., Jan. 23.—Bargain sales of gasoline made their appearance in Gulf Coast refinery markets the past week. Several sellers openly offered gasoline at greatly reduced prices to buyers of burning oils. In some cases, due to the scarcity of fuels and burning oils, it became almost mandatory that buyers wanting a cargo of the latter products take a cargo of gasoline also; several such sales were reported, with buyers required to take out gasoline along with their purchases of burning oil.

Prices quoted on such gasolines tended to confuse the market picture. Although under ordinary conditions such sales, being conditioned on other factors, would not be representative of the spot market, the fact that gasolines did not move generally on straight sales at higher prices virtually set such low prices as the market.

High-octane leaded gasolines were available at 5 cents. Some of this material ran as much as 72-74 octane. Lower grades were quoted accordingly. Without prospect for immediate relief from the excess stocks backed up on the Gulf Coast, sellers the past week expressed increasing concern over the sharp break in gasoline prices.

Continued strength of fuel and burning oils offset to a large extent the dark outlook in the gasoline picture. Although there still were no advances in prices, there was no easing up in the tight situation. Several sources attempted to move up a nickel in their quotations for Bunker C fuel in cargoes, but the top going price stills hangs at $1, with several major sources staying at 97 cents. Coastal sellers the past week expressed the opinion that present prices for these products are at the critical point, considering the high tanker rates to Atlantic seaboard and that any attempt to boost them might react unfavorably.

Kerosenes continued firm and in good demand, but were not as tight as fuel and burning oils. While never overplentiful, buyers had no particular difficulty in meeting their requirements for these products.

The lubricating oil situation was unchanged.

A. P. I. Weekly Refinery Statistics

Week Ended January 20, 1940

	Capacity reporting (per cent)	Daily crude runs (bbl.)	Total gasoline stocks (bbl.)	Gas oil and distillate stocks (bbl.)	Residual fuel-oil stocks (bbl.)
East Coast	100.0	602,000	18,628,000	8,015,000	7,739,000
Appalachian	87.3	122,000	3,874,000	408,000	500,000
Ind., Ill., and Ky.	90.7	489,000	13,126,000	3,630,000	2,680,000
Okla., Kans., and Mo.	81.6	250,000	7,289,000	1,333,000	2,269,000
Inland Texas	50.3	117,000	1,835,000	319,000	1,669,000
Texas Gulf	90.0	851,000	13,720,000	3,775,000	5,568,000
Louisiana Gulf	97.8	121,000	2,631,000	915,000	895,000
No. La. and Ark.	55.0	38,000	633,000	243,000	429,000
Rocky Mountains	54.2	56,000	1,333,000	159,000	471,000
California	90.0	495,000	16,811,000	9,341,000	80,287,000
Total reported	84.6	3,141,000	79,880,000	28,138,000	102,507,000
Est. unreported	.....	369,000	6,000,000	750,000	2,075,000
*Est. total	.....	3,510,000	85,880,000	28,888,000	104,582,000
*Est. total prev. wk.	.....	3,520,000	84,326,000	30,326,000	104,712,000
*Jan. 21, 1939	.....	3,310,000	76,452,000	33,819,000	116,985,000

*Bureau of Mines.

Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATE)

Week ended January 13, 1939	238,249,000 barrels
Week ended January 6, 1939	238,581,000 barrels
Week ended January 14, 1938	271,819,000 barrels

Figures do not include stocks of heavy, unrefinable California crude.

Steveville Field

In the Steveville field, eastern Alberta, Standard of B. C.'s No. 1 Princess, LSD 13, Section 22-20-12w4, is below 4,609 ft. Operators are planning to continue to between 7,000 and 8,000 ft. for a thorough test of the lower lime horizons.

Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of January 23, 1940

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county, and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

Standard Oil Co. (Indiana)

	Gasoline			Kero.
	Tank wag.	Dlr. tax	Inc. tax	tank wag.
Chicago, Ill.	15.1	13.1	4.0	10.0
Decatur	15.1	12.1	4.0	8.5
Joliet	15.1	13.6	4.0	10.0
Peoria	15.1	12.7	4.0	†10.0
Quincy	14.9	13.4	4.0	9.8
Davenport, Ia.	15.1	13.6	4.0	‡10.0
Des Moines	14.9	12.4	4.0	‡9.8
Mason City	15.3	13.8	4.0	‡10.2
Duluth, Minn.	16.9	15.4	5.0	10.8
Mankato	16.5	15.0	5.0	10.4
Minneapolis	16.5	14.5	5.0	10.4
LaCrosse, Wis.	16.5	15.0	5.0	10.4
Green Bay	16.9	15.4	5.0	10.0
Milwaukee	16.3	14.4	5.0	10.2
Detroit, Mich.	13.6	12.1	4.0	7.6
Grand Rapids	13.9	11.7	4.0	9.7
Saginaw	14.8	13.3	4.0	9.3
Evansville, Ind.	16.6	15.1	5.0	†10.5
Indianapolis	16.8	14.3	5.0	†10.0
South Bend	16.8	15.3	5.0	†10.0
Fargo, N. D.	17.7	16.2	5.0	11.6
Huron, S. D.	17.0	15.5	5.0	10.9
Kans. City, Mo.*	14.4	12.9	4.0	8.0
St. Louis*	14.7	13.2	4.0	8.0
St. Joseph	14.4	12.0	4.0	7.9
Wichita, Kans.	13.3	11.1	4.0	7.0

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gal. or more, 1.5 cents off; minimum delivery 25 gal.

Stanolex Fuel Oil in Chicago

Effective December 12, 1939, f.o.b. Chicago tank-wagon prices: Standard heater oil, 1-99 gal., 9 cents; 100-149 gal., 8 cents; 150 gal. and over, 7.5 cents. Stanolex fuel oil No. 1, 1-149 gal., 8.25 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex fuel oil No. 2, 1-149 gal., 8.25 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex furnace oil, 1-149 gal., 8.25 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex Grade A, 1-399 gal., 5.5 cents; 400 gal. and over, 4.5 cents. Stanolex Grade B, 1-799 gal., 5.25 cents; 800 gal. and over, 4.25 cents. Stanolex Grade C, 1-999 gal., 4.5 cents; 1,000 gal. and over, 3.5 cents.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline			Kero.
	Tank-wag. cons'r.	Dividend dlr.	Inc. tax	tank wag.
Ohio points	16.0	15.0	5.0	*13.0

*Includes state tax of 1 cent.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline			Kero.
	Cons'r. tank car	Dlr. tank wag.	Inc. tax	tank wag.
Atl'tic City, N. J.	11.6	12.7	4.0	8.1
Newark	11.6	12.7	4.0	8.1
Annapolis, Md.	13.35	14.35	5.0	9.5
Baltimore	12.75	13.75	5.0	7.5
Cumberland	14.15	16.15	5.0	10.0
Wash'gton, D. C.	11.00	12.0	3.0	9.5
Danville, Va.	14.95	17.45	6.0	12.9
Norfolk	13.75	16.25	6.0	11.0
Petersburg	14.05	16.55	6.0	11.7
Richmond	14.05	16.55	6.0	10.7
Roanoke	15.25	17.75	6.0	11.0
Charles'n, W. Va.	14.55	17.05	6.0	12.6
Parkersburg	13.85	15.35	6.0	11.2
Wheeling	14.35	16.75	6.0	12.2
Charlotte, N. C.	16.90	18.40	7.0	11.8
Hickory	17.45	18.95	7.0	12.3
Mt. Airy	17.30	18.80	7.0	12.2
Raleigh	16.65	18.15	7.0	11.5
Salisbury	16.95	18.45	7.0	11.9
Charleston, S. C.	14.75	17.25	7.0	10.6
Columbia	15.60	18.10	7.0	11.5
Spartanburg	16.30	18.80	7.0	12.2

Price basis to Essolene undivided dealers: Dealer tank-wagon price less 0.5 cent per gallon. Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gal., consumer tank-wagon price at time and place of delivery; 100,000 gal. per year, consumer tank-car price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5 cent per gallon.

Effective January 16, 1939, in North Carolina the commercial consumer schedule became as follows: Single deliveries of 50 gal. or more, consumer tank-wagon price. Single deliveries of less than 50 gal., 4 cents per gallon over consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price, less .5 cent per gallon. The above policy also applies in South Carolina effective January 23, 1939.

Discounts for kerosene, 1 cent off tank-wagon price for 25 gal. or more under contract (contract not necessary in Baltimore) except no discount in New Jersey.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline			Kero.
	Cons'r. tank wag.	Net dlr.	Inc. tax	tank wag.
Atlanta, Ga.	21.0	18.0	7.0	8.0
Augusta	20.5	17.5	7.0	10.0
Macon	19.5	16.5	7.0	10.5
Savannah	19.5	16.5	7.0	9.0
Birmingham, Ala.	21.5	18.5	8.0	9.0
Mobile	19.5	16.5	9.0	8.0
Montgomery	22.5	19.5	9.0	11.0
Jackson, Miss.	19.5	16.5	7.0	10.0
Vicksburg	19.5	16.5	7.0	9.5
Jacksonville, Fla.	20.0	17.0	8.0	8.0
Miami	20.0	17.0	8.0	7.0
Pensacola	21.5	18.5	9.0	8.5
Tampa	21.0	18.0	8.0	8.5
Lexington, Ky.	19.5	16.5	6.0	10.0
Covington	18.0	15.0	6.0	9.5
Louisville	18.5	15.5	6.0	9.0
Paducah	18.5	15.5	6.0	9.0

Price basis to tank-wagon consumers: Effective January 4, 1937; 3 cents per gallon below tank-wagon price.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola, Fla., has a city gasoline tax of 1 cent. All are included in the table.

Pennsylvania and Delaware

ATLANTIC REFINING CO.

	Gasoline			Kero.
	Cons'r. tank car	Dlr. tank wag.	Inc. tax	tank wag.
Philadelphia, Pa.	12.5	14.0	5.0	10.0
Pittsburgh	13.0	14.5	5.0	10.5
Allentown	13.0	14.5	5.0	10.5
Erie	13.0	14.5	5.0	10.0
Scranton*	12.5	15.0	5.0	10.5
Altoona	13.0	15.0	5.0	10.5
Dover, Del.	...	13.5	5.0	10.5
Wilmington	...	14.0	5.0	9.75

Price basis to undivided dealers, dealer tank-wagon price less .5 cent per gallon.

*Voluntary discount of 1 cent allowed to dealers only.

Discount on kerosene, 2 cents per gallon off tank-wagon price on tank-wagon deliveries of 25 gal. or more at one time.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline			Kero.
	Tank truck	Serv. sta.	Inc. tax	tank wag.
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	10.0
Fresno, Calif.	18.5	19.5	4.0	12.5
Phoenix, Ariz.	20.0	21.0	6.0	*17.5
Reno, Nev.	20.5	21.5	5.0	13.5
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	†13.75
Spokane	21.5	22.5	6.0	†16.75
Tacoma	20.0	21.0	6.0	†13.75

*Includes 5-cent state tax. †Includes 0.25-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents. To commercial consumers: On tank-wagon price; on single deliveries of 40 gal. and over, advance quantity discount extended at time of delivery, 3 cents. Service-station schedule applies on single deliveries less than 40 gal. On kerosene in tank-car, transport-truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank wagon.

March 18, 1939, split dealer discount was canceled.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline			Kero.
	Cons'r. tank car	Dlr. tank wag.	Inc. tax	tank wag.
Albany	12.6	14.2	5.0	8.30
*Met. N. Y.: Manhat, Bronx, Queens, Br'klyn., Staten Island	12.7	13.7	5.0	8.50
Buffalo	13.1	14.5	5.0	7.60
Rochester	13.3	15.0	5.0	8.40
Syracuse	13.2	14.5	5.0	8.80
Portland, Me.	12.6	14.4	5.0	8.50
Manchester, N. H.	13.3	15.3	5.0	8.90
Burlington, Vt.	13.1	15.0	5.0	8.70
Boston, Mass.	11.5	13.0	4.0	8.50
Worcester	12.1	13.5	4.0	8.40
Hartford, Conn.	11.9	13.3	4.0	8.40
New Haven	11.8	12.8	4.0	7.50
Providence, R. I.	11.5	13.3	4.0	8.50

*Does not include 2 per cent city sales tax, which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Effective February 15, 1939, the company changed its commercial consumer policy in New York and New England points for tank-wagon delivery to the following: Annual purchases 10,000 gal. and under, tank-car price plus 2 cents per gallon; annual purchases 10,000 gal. up to 50,000 gal., tank-car price plus 1.5 cents per gallon; annual purchases 50,000 to 200,000 gal., tank-car price plus 1 cent per gallon; annual purchases 200,000 gal. and over, tank-car price plus ⅛ cent per gallon. Private consumers pay undivided dealer price, plus 2 cents per gallon. Private consumers receiving full compartment deliveries of at least 200 gal. receive a discount of ½ cent per gallon.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline			Kero.
	Tank wag.	Dlr. tax	Incl. tax	tank wag.
Denver, Colo.	15.5	...	5.0	11.5
Grand Junction	17.5	...	5.0	15.0
Pueblo	15.0	...	5.0	9.0
Casper, Wyo.	17.5	...	5.0	11.5
Cheyenne	15.5	...	6.0	13.0
Billings, Mont.	18.5	...	6.0	13.0
Butte	20.0	...	6.0	15.5
Great Falls	19.5	...	6.0	15.5
Helena	20.5	...	6.0	15.5
Salt Lake, Utah	15.5	15.5	5.0	16.0
Boise, Idaho	21.1	21.1	6.0	18.0
Twin Falls	21.1	21.1	6.0	18.0
Albu'que, N. M.	17.0	17.0	6.5	10.0
Roswell	16.0	16.0	6.5	8.0
Santa Fe	17.5	17.5	6.5	10.0

*Includes city tax of 0.5 cent. †Includes state tax of 1 mill.

Tank wagon represents price to consumers. Dealer represents price to dealers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline			Kero.
	Cons. tank car	Dlr. tank wag.	Inc. tax	tank wag.
New Orleans, La.	15.25	17.75	8.0	†11.0
Baton Rouge	15.25	17.75	8.0	‡10.5
Alexandria	15.25	17.75	8.0	‡12.5
Lafayette	15.00	18.00	8.0	‡11.0
Lake Charles	15.25	17.75	8.0	‡12.5
Shreveport	14.00	16.50	8.0	‡11.0
Knoxville, Tenn.	18.00	20.50	8.0	13.0
Memphis	16.00	18.50	8.0	11.0
Chattanooga	17.50	20.00	8.0	12.0
Nashville	17.00	17.50	8.0	11.0
Bristol	18.25	17.75	8.0	13.0

Essolene at dealer price less 0.5 cent per gallon to undivided dealers.

†Includes 1-cent parish tax and 1-cent state tax. ‡Includes 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gal. or more in one territory take posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gal. at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less 0.5 cent per gallon. Kerosene prices include 1-cent state tax.

Effective February 24, 1939, the company reestablished in New Orleans the commercial consumer policy on motor fuel effective in the rest of the state.

Effective December 12, 1938, the company revised its commercial consumer policy on motor fuel in New Orleans, as follows: Single deliveries of less than 50 gal., consumer tank car plus 2 cents per gallon 50 to 199 gal., consumer tank car plus 1 cent per gallon; 200 gal. and over, consumer tank car plus 0.5 cent per gallon.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline			Kero.
	Tank wag.	Dlr. tax	Inc. tax	tank wag.
Omaha	16.5	13.5	6.0	9.8
McCook	16.5	13.9	6.0	9.0
Norfolk	16.5	14.4	6.0	9.5
North Platte	17.8	14.9	6.0	10.0
Scottsbluff	18.5	15.5	6.0	11.4

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective January 1, 1935.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline			Kero.
	Tank wag.	Dlr	Inc. tax	tank wag.
Texarkana, Ark.	13.0	...	5.0	7.0
Fort Smith	14.5	...	5.0	7.5
Little Rock	17.25	...	7.5	8.0
Muskogee, Okla.	13.0	12.0	5.0	7.0
Oklahoma City	11.0	...	5.0	6.5
Tulsa	11.0	...	5.0	7.0

Tank wagon represents price to consumers. Dealer represents price to dealers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Texas

	Gasoline			Kero.
	Tank wag.	Dlr.	Inc. tax	tank wag.
Dallas, Tex.	12.0	16.0	5.0	7.0
Fort Worth	12.0	16.0	5.0	8.0
Houston	14.0	18.0	5.0	8.0
San Antonio	14.0	18.0	5.0	8.0

Canada

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Tank wag.	Inc. tax	Kero. tank wag.
Halifax, N. S.	24.5	10.0	18.5
St. John, N. B.	24.5	10.0	18.5
Montreal, Que.	23.5	8.0	16.0
Toronto, Ont.	23.5	8.0	16.0
Hamilton, Ont.	23.5	8.0	16.0
Winnipeg, Man.	26.5	7.0	20.5
Brandon, Man.	28.0	7.0	22.0
Regina, Sask.	25.5	7.0	20.5
Saskatoon, Sask.	28.0	7.0	23.0
Edmonton, Alta.	25.0	7.0	20.0
Calgary, Alta.	23.0	7.0	18.0
Vancouver, B. C.	23.0	7.0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon prices. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank wagon*
Oleum spirits	16.2
V.M.&P. naphtha	16.5
Cleaners' naphtha	15.5
Stanisol	15.5

*Prices include 3-cent Illinois tax but not 1-cent federal tax nor 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gal. lots if covered by contract.

Tank-Wagon Changes

Atlantic Refining Co. January 17 reduced consumer tank-car gasoline 0.5 cent in Philadelphia.

Standard Oil Co. (Indiana), January 11, reduced tank-wagon kerosene 0.9 cent in Wichita.

British Columbia

Preliminary arrangements have been made by W. J. Asselstine, minister of mines for British Columbia, for the Government's first test for oil at Commotion Creek in the Peace River Block, close to the Alberta boundary. The Government is planning to start work in the spring, drilling contract being let on an actual footage basis.

Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of January 23, 1940

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents a gallon on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 octane and below	.03⅞	.04
63-66 octane	.04⅛	.04¼
67-69 octane	.04⅜	.04½
70-72 octane (regular)	.04⅝	.04¾
60-62 400 grades:		
62 octane and below	.03⅞	.04
63-66 octane	.04⅛	.04¼
67-69 octane	.04⅜	.04½
70-72 octane (regular)	.04⅝	.04¾
68-70 360	.04¾	.05

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below	.03⅞	.04
63-66 octane	.04⅛	.04¼
67-69 octane	.04⅜	.04½
70-72 octane (regular)	.04⅝	.04¾
60-62 400	.03⅞	.04

NORTH LOUISIANA (Ark. and N. La. delivery)—

U. S. Motor grades:		
62 octane and below	.04¼	.04½
63-66 octane	.04½	.04¾
67-69 octane	no quotations	
70-72 octane (regular)	.06	.05¼

ARKANSAS (Ark. and N. La. del.)—

U. S. Motor grades:		
62 octane and below		.04⅝
67-69 octane	no quotations	
70-72 octane (regular)		.05½

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.03⅞	.04⅛
63-66 octane	.04⅛	.04⅜
67-69 octane	.04⅜	.04⅝
70-72 octane (regular)	.04⅝	.04¾
60-62 400 grades:		
62 octane and below	.03⅞	.04⅛
63-66 octane	.04⅛	.04⅜
67-69 octane	.04⅜	.04⅝
70-72 octane (regular)	.04⅝	.04⅞
68-70 360	.04¾	.05

PENNSYLVANIA (inland refineries)—

58-60 U. S. Motor	.04½	.04¾
65 octane	.06⅛	.06⅜
72-74 octane (regular)	.06⅝	.06¾

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.06	.07
58-60 400, 65 oct. and higher	.07	.08

EAST COAST (domestic)—

U. S. Motor, 65 and above:		
*New York (Bayonne)	.06½	.07
Philadelphia	.06½	.06¾
Boston	.06¾	.07⅛
Baltimore	.06½	.07
Charleston, S. C.	.05	.05½

*All grades of gasoline ⅛ to ¼ cent less for barge shipments. New York harbor prices are for New York and New England delivery. Prices for New Jersey delivery ¼ cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
65-67 octane	.04⅝	.04¾
68-70 octane	.04¾	.05
70-72 octane (leaded)	.05	.05⅛

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.02⅛
Grade 18-55	.02⅝	.02¾

NORTH TEXAS—

Grade 26-70		.02
Grade 18-55		.02⅝

CALIFORNIA—

75-85 375-390	.05¾	.06

NORTH LOUISIANA (Ark. and N. La. delivery)—

Grade 26-70		.02⅝

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 l.b.p., 110-flash, 540-550 e.p.	.03⅝	.03¾
41-43 gr., 300-320 l.b.p., 110-125 flash, 500-520 e.p.	.03¾	.03⅞
46-48 gr., 210-230 l.b.p., 480-max., e.p.	.04	.04⅛

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.03⅝	.03⅞
42-44	.03¾	.04

NORTH TEXAS—

41-43	.03⅝	.03¾

NORTH LOUISIANA (Ark. and N. La. delivery)—

41-43	.03⅛	.03⅝

ARKANSAS (Ark. and N. La. del.)—

41-43		.03⅝

PENNSYLVANIA (inland refineries)—

45	.04¾	.05⅛
46	.04⅞	.05¼
47	.05	.05⅜

CHICAGO (Based on Group 3)—

41-43	.03⅝	.03⅞
42-44	.03¾	.04

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.04½	.05¾

NEW YORK (Bayonne, N. J.)—

41-43	.0560	.0575

***GULF COAST (domestic)—**

41-43		.04½

*Barge price ⅛ cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.03⅝	.03⅞
No. 1 prime white, 38-42	.03⅝	.03⅞
No. 1 straw, 38-40	.03½	.03⅝
No. 2 straw, 32-36	.03⅝	.03½
No. 2 dark, 32-36	.03¼	.03⅜
No. 3 zero to 10, 28-32	.03¼	.03⅜
No. 3, 15 and above, 28-32	.02⅝	.03

NORTH TEXAS—

No. 1 prime white, 38-42		.03⅝
No. 1 straw, 38-40	.03½	.03⅝

NORTH LOUISIANA (Ark. and N. La. delivery)—

No. 2, 32-36	.03	.03⅛

ARKANSAS (Ark. and N. La. del.)—

No. 2 32-36		.03⅜

CHICAGO (Based on Group 3)—

Range oil	.03⅝	.03⅞
No. 1 prime white, 38-40	.03⅝	.03¾
No. 1 straw, 38-40	.03½	.03⅝
No. 2 straw, 32-36	.03⅝	.03½
No. 2 dark, 32-36	.03¼	.03⅜
No. 3, zero to 15, 28-32	.03¼	.03⅜
No. 3, 15 and above, 28-32	.02⅝	.03

NEW YORK (Bayonne, N. J.)—

*No. 1	.0535	.05750
*No. 2	.0510	.05375
*No. 4	.0500	.05375

*Barge deliveries ⅛ to ¼ cent under above tank-car price.

Gas Oil and Fuel Oil

(Gas oil per gal., fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil, under 35	.02⅝	.02⅞
No. 5, low pour point, 18-22	.70	.77½
No. 6, 15 and above, 8-14	.47½	.52½

NORTH TEXAS—

U.G.I. gas oil, under 35	.02⅝	.02⅞
No. 5, low pour point, 18-22	.70	.77½
No. 6, 15 and above, 8-14	.47½	.52½

NORTH LOUISIANA (Ark. and N. La. delivery)—

10-14 fuel oil, industrial	.70	.75

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02⅝	.02⅞
No. 5, low pour point, 18-22	.70	.80
No. 5, 15 and above, 18-22	.60	.70
No. 6, low pour point, 10-16	.60	.70
No. 6, 15 and above, 10-16	.45	.55

PENNSYLVANIA (inland refineries)—

36-40	.03⅜	.04⅛

CALIFORNIA—

Los Angeles:

30-40 gas oil, per bbl.	1.15	1.25
24 plus diesel, per bbl.	1.15	1.25
24 plus diesel (bunkers)	1.20	1.35
12-16 (bunkers at tidewater)	.70	.75
10-16 (cargo lots)	.70	.75
12-17 (tank cars)	.60	.75
10-17 (high sulfur)	.55	.65

San Joaquin Valley:

10-18 (tank cars)	.55	.70
24 plus diesel, per bbl.	1.15	1.25

San Francisco:

24 plus diesel, per bbl.	1.35	1.40
24 plus diesel (bunkers)	1.40	1.50
10-16 (bunkers)	.75	.80

GULF COAST—

No. 2 fuel		.04⅛
43-47 diesel		.04
48-52 diesel		.04¼
53-57 diesel		.04½
58 and above diesel		.04⅝
Bunker C (bulk cargoes)	.95	1.00
Bunker C (bunkers)		.90

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil	.05	.05⅛
28-30 diesel (lighterage 6¾c per bbl.)		1.70
28-30 diesel (tank cars)	.05	.052
Bunker C (to ocean-going ships in N. Y. harbor)		1.50
Industrial fuel (tank cars)	.035	.0375

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

190-200 D, 15-25	.28
150-160 D, 0-10	.25
150-160 D, 15-25	.24
150-160 E, 15-25	.24
100-110 D, 0-10	.24
Steam refined:	
600 dark green (untreated)	.08

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):

10 pour point	.32½	.35
15 pour point	.31½	.34
25 pour point	.30	.32
Steam refined:		
600	.18	.19
650	.20	.21
600 flash	.21	.24
630 flash	.24	.27

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

0-10 pour point:		
150-3		.13
180-3		.14
180-4		.13½
200-3		.14½
200-4		.14
250-3		.16
250-4		.15½
280-3		.17
280-4		.16½
300-3½		.17½
400-3½		.18½
100-2½ paraffin oil		.07½
15-25 pour point:		
200-3		.14
200-4		.13½
250-3		.15½
250-4		.15
280-3		.16½
280-4		.16

GULF COAST—

Pale oils:		
200-3	.07¼	.07½
300-3	.07¾	.08
500-3½	.08½	.09
750-3½	.09	.09½
1,200-3½	.09¾	.10
2,000-4		.10¼
Red oils:		
200-5-6	.07	.07¼
300-5-6	.07½	.07¾
500-5-6	.08¼	.08¾
750	.08¾	.09¼
1,200-5-6	.09¾	.09¾

CALIFORNIA (moving to dom. market)—

Pale oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis. at 70° F., 3 color, 400-405 flash:		
Zero pour point		.31½
10 pour point		.30½
15 pour point		.29½
25 pour point	.28	.30
200 vis. at 70° F., 3 color:		
Zero pour point		.34½
10 pour point		.33½
15 pour point		.32½
25 pour point	.31	.33

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (A.m.p.) w.c. scale	.0650	.0675

PENNSYLVANIA (inland refineries)—

122-124 (A.m.p.) w.c. scale	.06375	.0650
124-126 (A.m.p.) w.c. scale	.06375	.0650

NEW YORK—

Wax in bags fully refined:		
125-127 (A.m.p.) wax	.0610	.0660
128-130 (A.m.p.) wax	.0620	.0675
130-132 (A.m.p.) wax	.0635	.0700
133-135 (A.m.p.) wax	.0665	.0730
135-137 (A.m.p.) wax	.0690	.0755
Crude scale:		
124-126 (A.m.p.) w.s.	.0650	.0675
124-126 (A.m.p.) y.s.	.0650	.0675
Petrolatum in barrels, carload lots:		
Dark green	.03500	.0360
Amber	.03625	.0400
Extra amber	.03875	.0425
Lily white	.06625	.0700
Snow white	.07625	.0800
Cream	.05625	.0600

Export Prices

GASOLINE

GULF COAST—

U. S. Motor	.05¼	.05½
60-62 400	.05¼	.06¼
61-63 390	.05¼	.06¼
64-66 375	.05⅝	.06⅝

LOS ANGELES—

U. S. Motor grades:		
60-65 octane	.05½	.05⅝
65-69 octane	.05⅝	.06¼
Above 69 octane	.06¼	.06½

KEROSENE

GULF COAST—

41-43 prime white	.04¼	.04⅛
41-43 water white	.04½	.04⅝

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.o.s.) in bbl.)—

Cylinder stocks:		
600 S.R. unfiltered	.23	.27
650 S.R. unfiltered	.25	.30
600 flash, S.R.	.26	.31⅛
630 flash, S.R.	.31	.36
Bright stock:		
Light, 25 pour point	.38½	.42

NEUTRAL OIL

200-3 color	.38	.39
150-3 color	.37	.39

PARAFFIN WAX

NEW YORK (prices per pound)—

133-125 A.m.p.	.0640	.0650
125-127 A.m.p.	.0700	.0750
128-130 A.m.p.	.0750	.0775
133-135 A.m.p.	.0825	.0850
135-137 A.m.p.	.0875	.0900
Crude scale:		
124-126 w.s.	.0675	.0700
124-126 y.s.	.0675	.0700

Market Record of Active Oil Stocks

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1939-1940 High	1939-1940 Low	Week ended Jan. 20 High	Week ended Jan. 20 Low	Week ended Jan. 20 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1939	Com. sh. earn. 1938	Com. sh. earn. 1937	1939 High	1939 Low	1938 High	1938 Low
74½	50	54	53½	54	Amerada Corp.	788,675	N.P.	50cQ	1-31-40	$2.00	$2.07	$3.04	74½	50	78	55
24⅞	18⅛	21⅝	20½	21⅝	Atlantic Refining	2,663,999	$25	25cQ	12-15-39	1.00	1.40	3.51	24¾	18⅛	27⅝	17¾
21½	10¼	14¾	13¾	13¾	Barber Asphalt Co.	390,223	$10	25c	11-17-39	.25	—.85	1.91	21	10¼	23¾	12⅛
19½	11⅛	12⅝	12	12	Barnsdall Oil Co.	2,250,344	$5	15c	3-9-40	.90	1.26	.85	19½	11⅛	21⅝	10⅛
9⅞	6½	7⅜	7⅛	7⅜	Consolidated Oil Corp.	13,751,846	N.P.	20cQ	2-15-40	.80	.55	1.48	9⅞	6½	10⅝	7
31½	19⅞	24⅛	22⅜	23¼	Continental Oil of Delaware	4,682,581	$5	25cQ	3-25-40	1.00	1.10	2.98	31½	19⅞	35⅝	21¼
9⅜	4½	5⅞	5¾	5¾	Houston Oil	1,098,618	$25	....	10-17-30	....	.83	.94	9⅜	4½	9⅝	5
20¼	10	12¾	12⅜	12⅜	Lion Oil Refining	435,815	N.P.	25cQ	12-23-39	1.00	2.09	2.17	18⅛	10	25⅛	15⅝
18	11⅛	15	14	14	Mid-Continent Petroleum	1,857,912	$10	35c	12-1-39	.60	.56	2.86	18	11⅛	22⅝	12¼
14⅞	8¾	10	9⅞	9⅞	Mission Corporation	1,379,245	$10	40c	12-15-39	.65	1.04	1.31	14⅞	8¾	17⅝	10⅝
15½	5⅝	8½	8⅛	8½	National Supply	1,155,517	$10	....	12-22-37	....	—.79	4.90	15½	5⅝	23	12⅛
10½	6	6⅞	6⅝	6¾	Ohio Oil Co.	6,563,377	N.P.	20c	12-15-38	....	.25	1.30	10½	6	14⅞	8⅞
11⅞	7	8	.7¼	8	Pacific Western Oil	1,000,000	N.P.	40c	12-19-39	.40	1.22	1.39	11⅞	7	15⅞	10¼
8¾	5	6¾	6¾	6¾	Pan American Pet. & Trans.	4,702,945	$5	....	12-21-37	....	.08	1.18	8¾	5	9¼	6¼
46½	31¼	40½	38⅞	39¾	Phillips Petroleum	4,449,052	N.P.	50cQ	12-1-39	2.00	2.03	5.42	46½	31¼	44⅝	27¼
24	17⅛	21	20½	20¾	Plymouth Oil Co.	1,006,200	$5	35cQ‡	12-31-39	§1.40	2.59	2.85	24	17⅛	25⅝	15
11¾	6⅛	8⅞	8½	8½	Pure Oil Co.	3,982,031	N.P.	25c	12-20-39	.25	.38	2.15	11¾	6⅛	13½	8¼
10¼	6⅝	7⅞	7½	7½	Richfield Oil Corp.	4,010,000	N.P.	50c	12-18-39	.50	.51	.35	10¼	6⅝	9⅞	5
24⅜	16½	18¼	18	18¼	Seaboard Oil of Delaware	1,244,383	N.P.	25cQ	12-15-39	1.00	1.52	1.97	24⅜	15½	27½	15½
17¼	9⅞	12¼	11¼	12⅛	Shell Union Oil	13,070,625	N.P.	25c	12-20-39	.50	.72	1.44	17¼	9⅞	18⅝	10
29½	15½	20	19½	19¾	Skelly Oil	995,349	$15	25c	1-30-40	.75	2.27	6.07	29½	15½	34⅝	18½
15⅛	10¼	12⅛	11⅜	12	Socony-Vacuum	31,206,071	$15	25cSA	9-15-39	.50	1.29	1.82	15⅛	10¼	16⅜	10⅝
33⅝	24¼	25½	25	25	Standard Oil of California	13,004,153	N.P.	25cQ	12-15-39	1.10	2.22	3.17	33⅝	24¼	34⅞	25⅛
30	22¾	26½	25⅞	26¼	Standard Oil (Indiana)	15,272,020	$25	50c†	12-15-39	1.25	1.82	3.66	30	22¾	35½	24⅝
53½	38	44½	43¼	44⅛	Standard Oil of New Jersey	26,618,065	$25	75c¶	12-15-39	‖1.25	2.86	5.64	53½	38	58⅜	39⅝
66	45⅜	57	56½	56⅜	Sun Oil	2,316,484	N.P.	25cQ	12-15-39	1.00	1.07	3.86	66	45⅜	65⅛	45
3⅝	1⅜	2¼	2	2	Superior Oil Corp.	1,388,979	$1	10c	12-28-38	....	.24	.32	3⅝	1⅜	4¼	1⅝
50¾	32½	45	43½	44⅜	Texas Corp.	10,876,882	$25	50cQ	1-2-40	2.00	2.13	5.02	50¾	32½	49⅝	32⅝
5⅜	3¼	3⅜	3⅝	3⅝	Texas Gulf Producing Co.	888,146	N.P.	10c	12-15-39	.20	.86	.68	5⅜	3¼	5⅞	2⅝
11⅜	7	8¼	8	8	Texas Pacific Coal & Oil	888,236	$10	10c	12-1-39	.40	1.16	1.11	11⅜	7	12½	7
15¼	9½	10⅝	10¼	10⅝	Tide Water Associated	6,375,253	$10	15c	12-1-39	.80	1.28	2.08	14¼	9½	15⅝	10⅛
19¾	15⅛	16¾	16	16½	Union Oil of California	4,666,270	$25	25c	11-10-39	1.05	1.47	2.58	19¾	15⅛	22½	17⅛
24¼	20½	23⅝	23	23	Union Tank Car Co.	1,177,381	N.P.	40c†	12-1-39	1.30	1.16	1.70	24¼	20½	23½	20
4¼	2⅜	..	..	..	Wilcox Oil & Gas	487,568	$5	10c	2-15-40	....	.52	.24	4¼	2⅜	3½	1⅝

†Includes extras. ‡Also 2 per cent in stock. §Also 4 per cent in stock. ‖Also 2½ per cent in stock. ¶Also 1½ per cent in stock. —Deficit.

New York Curb Exchange

1939-1940 High	1939-1940 Low	Week ended Jan. 20 High	Week ended Jan. 20 Low	Week ended Jan. 20 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1939	Com. sh. earn. 1938	Com. sh. earn. 1937	1939 High	1939 Low	1938 High	1938 Low
11¾	5½	7	6½	6½	American Republics Corp.	1,308,049	$10	10c	7-11-38	....	—$0.22	$0.27	11¾	5½	11¾	5
7¼	2½	2⅞	2⅞	2⅞	Bridgeport Machine Co.	270,000	N.P.	$1.25	12-30-37	....	—.14	1.90	7¼	2½	10¼	4⅞
34¾	26½	34	30½	34	Buckeye Pipe Line Co.	200,000	$50	$1	3-15-40	$2.50	2.36	4.02	34¾	26½	39	22½
130	108⅝	113	113	113	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	12-18-39	6.00	5.32	6.73	130	108⅝	128	97
9¼	4¼	4½	4½	4½	Cities Service (new)	3,704,067	$10	....	6-1-32	....	.23	1.02	9¼	4¼	11	5⅛
2¼	½	1⅜	1¼	1⅜	Cosden Petroleum	462,551	$1	....	....	....	....	.19	2¼	½	2⅝	⅞
28	16¾	21¾	21	21⅜	Creole Petroleum	6,975,383	$5	50cSA†	12-15-39	1.00	1.64	1.61	28	16¾	27½	17½
7⅛	3⅝	..	..	..	Darby Petroleum	351,390	$5	25cSA	1-15-39	.25	....	1.36	7⅛	3⅝	10¼	5½
2⅝	1½	..	..	..	Derby Oil & Refining	263,162	N.P.	....	....	....	—.91	1.34	2⅝	1½	3½	1½
23	15⅛	..	..	..	Eureka Pipe Line	50,000	$50	50c	11-1-39	2.00	—.37	—.12	23	15⅛	31	16
45⅛	29¼	36¾	35⅜	35¾	Gulf Oil Corp.	9,076,202	$25	25cQ	12-15-39	1.00	1.43	3.51	45⅛	29¼	46⅞	33
71	52½	62½	61	61¾	Humble Oil & Refining	8,987,840	N.P.	62½c	12-16-39	2.00	3.98	5.22	71	52½	72⅝	56
17	11⅜	12¼	12	12¼	Imperial Oil of Canada	26,965,078	N.P.	37½c†	12-1-39	1.00	.96	.98	17	11⅜	19½	14⅛
7¼	5½	6½	6⅛	6⅛	Indiana Pipe Line	300,000	$10	20c	11-15-39	.50	.47	1.03	7¼	5½	9⅝	6
27½	17⅜	17⅜	17¼	17⅜	International Petroleum	14,324,088	N.P.	75c	12-1-39	1.75	1.98	....	27½	17	31¼	21
3¾	2⅛	2¼	2¼	2¼	Kirby Petroleum Co.	500,000	$1	10c	4-15-38	....	.14	.17	3¾	2⅛	5	2⅛
10½	7⅛	10	9¾	9⅞	Lone Star Gas	5,553,747	N.P.	30c	12-22-39	.70	.88	1.14	10½	7⅛	10⅝	6⅝
7¾	4	5½	5⅛	5⅜	Louisiana Land & Exp.	2,977,449	$1	5c	12-15-39	.35	.45	.58	7¾	4	9⅝	6½
17	14½	..	..	..	Margay Oil Corp.	149,943	N.P.	25cQ	1-10-40	1.00	2.28	3.26	17	14½	24	16
8¾	6⅝	..	..	..	Midwest Oil Co.	998,474	$10	45c	12-15-39	.90	.93	1.14	8¾	6⅝	9⅝	6⅝
6	4⅞	5⅝	5⅝	5⅝	Mountain Producers	1,593,584	$10	30cSA	12-15-39	.60	.62	.76	6	4⅞	5⅜	4½
14	11¼	12¼	12	12¼	National Fuel Gas	3,810,183	N.P.	25cQ	1-15-40	1.00	.84	.96	14	11¼	14⅝	11½
9⅞	7¼	10	8¾	10	National Transit	509,000	$12.50	50c	12-15-39	.85	.88	1.19	9½	7¼	9¼	6½
1¾	1	..	..	..	New Mexico and Arizona	1,000,000	$1	1c	12-1-37	....	.02	.02	1¾	1	2⅝	1½
6	4	..	..	..	New York Transit	100,000	$5	25c	10-14-39	.40	.16	.49	6	4	4½	3½
7	4½	7	6⅞	7	Northern Pipe Line	120,000	$10	15c	12-1-39	.30	.24	.78	7	4½	6	4
7⅝	4	5	4¾	5	Pantepec Oil	2,857,000	$1	....	....	....	....	....	7⅝	4	7¾	3½
5	1¼	2⅝	2⅝	2⅝	Root Petroleum Co.	336,045	$1	25c	2-1-37	....	.17	—.17	5	1¼	4½	1⅝
3	1⅞	2¼	2	2	Ryan Consolidated	298,931	N.P.	....	....	....	.29	.46	3	1⅞	4	2⅛
5½	3½	5½	5¼	5½	Southern Pipe Line	100,000	$10	15cSA	9-1-39	.30	—.27	.85	4⅞	3½	5⅝	3¼
44	26¾	43⅛	40⅛	42¾	South Penn Oil	1,000,000	$25	$1.87½Q†	12-15-39	3.00	1.44	4.64	40½	26¾	39	28¾
23	17	..	..	..	Southwest Penna. Pipe Lines	35,000	$50	50cQ	12-26-39	2.00	—.41	.95	23	18	22¼	16½
20⅝	17¼	20⅝	20¼	20½	Standard Oil of Kentucky	2,604,790	$10	55c†	12-15-39	1.30	1.45	1.60	20½	17¼	18⅜	15
32¾	17	29½	29⅛	29¼	Standard Oil of Ohio	753,740	$25	75c†	12-15-39	1.50	1.81	3.67	32¾	17	22⅝	16¼
2¾	1¾	2	1¾	1¾	Sunray Oil	2,007,076	$1	5c	12-20-39	.10	.23	.42	2¾	1¾	3¼	2
4	2⅝	2⅝	2⅝	2⅝	Texon Oil & Land	936,024	$2	10c	6-30-39	.10	.56	.51	4	2⅝	5¼	3½
6	2½	3⅛	3⅛	3⅛	Transwestern Oil Co.	750,000	$10	....	....	....	—.12	.48	6	2½	7⅝	4¼
3⅜	1½	1⅞	1¾	1¾	United Gas Corp.	7,818,959	$1	....	....	....	—.51	.25	3⅜	1½	5¼	2⅝

†Includes extras. —Deficit.

New or Improved Equipment

Strength and Moderate Weight Combined in Crawler Shovel

A newly designed line of crawler shovels of 1½ to 2-cu. yd. capacity, Series 300, equipped with Speed-o-Matic hydraulic (oil) power control and diesel, gasoline, oil or electric-motor drive, is announced by Link-Belt Speeder Corp., 301 West Pershing Road, Chicago. Among the features enumerated by the manufacturer are these:

New design throughout, giving greater strength, life, stability, and efficiency, without the burden of extravagant weight.

Greater speed and ease of operation, with the improved Speed-o-Matic control, resulting in 25 per cent or more increase in output.

Safe, foolproof control of travel, steering and locking brakes entirely from operator's position in cab; incorporating an automatic locking arrangement against involuntary movement of machine when it is out of travel gear.

Increased ground clearance, 14½ to 18-in. clear, with travel, steering and locking machinery entirely enclosed, and with no protruding housings and parts to obstruct travel or become damaged or fouled.

Choice of crawler widths and lengths to suit any practical operating or ground condition.

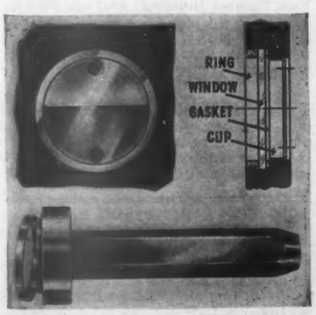
Extreme simplicity without sacrifice in versatility, including stress-relieved, unit-construction main frames of unusual depth and strength; large, rugged machinery, with machine-cut gears throughout, antifriction bearings, and other money-saving features.

Ease of conversion to shovel, dragline, crane or other front-end equipment.

Details of construction, working ranges, clearance dimensions, and safe loads at the various radii are given in a 12-page illustrated catalog sent upon request.

New Bijur Oil Window Affords Higher Degree of Visibility

Bijur Lubricating Corp., Long Island City, N. Y., has developed a new sight-oil window affording improved visibility. Offered for general use in connection with oil reservoirs, containers and lubricators, it is a self-contained unit, conveniently installed in a simple bored opening, readily provided in the design of machine casting or part.



This oil-window assembly consists of ring (chromium-plated, with polished face pressed flush), window, gasket, and cup, all fitted snugly into a metal pocket. A drilled opening at the top of the cup and one at the bottom permit free passage of the oil. The bright aluminum background of the cup acts as a reflector which, according to the manufacturers, gives sharp visibility of the oil level, even with imperfect lighting.

Standard sizes of the window, specified according to the diameter of the aluminum reflector face, are ¾, 1 1/16, and 1 5/16 in. A special assembly tool, also designed by Bijur, is available for tapping the ring accurately and securely into place without risk of breaking or marring the window.

GE Welding Sets Redesigned

Redesign of General Electric's 1,500-amp. constant-potential arc-welding sets for multiple operator and machine welding has resulted in more compact construction, lighter weight, improved appearance, and greater ease of installation. In addition, the improved equipment has the control for the motor and generator mounted on the base, making for greater convenience for the operator. Constant-potential motor-generator arc-welding sets are especially suited for supplying the heavy current demands of modern automatic welding.

Shaffer Now Making Gage Cock

The Waters boiler gage cock, formerly manufactured by Smith Separator Corp., is now being made and sold by J. E. Shaffer Co., 621 East Cameron Street, Tulsa. Other products of the Shaffer company are the Shaffer boiler gage cock, Shaffer handpower unit and various oil-field specialties.

Here and There With Men Who Manufacture Equipment

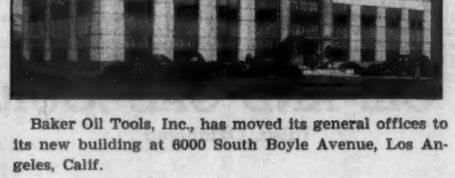
P. E. Fitzgerald, Tulsa, Dowell, Inc., geologist, has been named chairman of the International Petroleum Exposition's committee on geology and exploration.

Duff-Norton Manufacturing Co., Pittsburgh, Pa., manufacturer of lifting jacks, has appointed George W. Hoover export sales manager. From the export office at 30 Church Street, New York, Mr. Hoover will direct sales in Latin America and the Far East.

Kropp Forge Co., Chicago, has appointed J. F. Gilmore Co., 810 South Spring Street, Los Angeles, Calif., sales representative in the Lower California and Arizona territories.

C. H. McCollam, metallurgist of the Steel & Tube Division of Timken Roller Bearing Co., has been appointed assistant director of steel sales. He has been with the company 21 years.

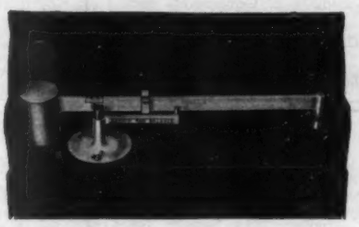
W. K. Mellon, vice president of Petroleum Rectifying Co. of California, has left Los Angeles for a tour of Petreco desalting plants at refineries in Ohio and Michigan, later continuing eastward to Pittsburgh and New York. On the return trip he will visit the Gulf Coast headquarters in Houston, Tex.



Baker Oil Tools, Inc., has moved its general offices to its new building at 6000 South Boyle Avenue, Los Angeles, Calif.

Two-Purpose Cases for Holding Baroid Mud Balance Offered

A two-purpose metal case has been designed for carrying the Baroid mud balance and also to act as a protection against wind and rain when determining the density of drilling fluids with the balance. An especially designed catch holds the cover straight up as shown in the illustration and prevents winds from distributing the natural oscillation of the sensitive balance during a test.



When not in use the upper section of the balance is removed from the base and clamped securely into place. The base is attached to the case in working position by thumb screws. As the Baroid mud balance is alumilited, the case has been finished in dark green to provide a suitable neutral background and thereby make it easier to read the calibrations on the balance arm. The cases are available with or without the mud balance from the Baroid Sales Department offices, Los Angeles, Calif.; Houston, Tex., or Tulsa.

Girbotol Installations Evidence Activity in Gas Purification

Increasing activity in the field of gas purification is evidenced by several new Girbotol installations announced by Girdler Corp., Louisville, Ky. In West Virginia, Clayco Gas Co. has built a Girbotol plant for removing hydrogen sulfide from 15,000,000 cu. ft. of gas per day. This plant is near Charleston. Another West Virginia installation is at Sissonville where the 15,000,000-cu.-ft.-capacity plant of United Fuel Gas Co., built last May, has been enlarged to bring the capacity up to 40,000,000 cu. ft.

The plant of Chartiers Oil Co. at Wayne, W. Va., built to purify gas by another process in 1937, has been converted to a Girbotol unit.

Another interesting installation is a small plant being built for Socony-Vacuum Oil Co. to be used for purifying gas-engine fuel. This is a compact, factory-assembled unit similar in design to the small Girbotol plants used for removing carbon dioxide in the production of inert atmospheres.

Three plants are under construction in foreign countries. Two are being erected by Societe Anonyme des Petroles Jupiter in France. One will be used to remove hydrogen sulfide from refinery gas and the other will scrub carbon dioxide from raw hydrogen. The third plant, also for removal of carbon dioxide from hydrogen, is being built by N. V. de Bataafsche Petroleum Mij. at Pladjoe, Netherland East Indies.

McAdams Joins J. & L. Sales Staff

Henry J. McAdams has become associated with the sales staff of the New York district sales office of Jones & Laughlin Steel Corp. In his new post he will specialize in the sale of oil-country tubular goods. Mr. McAdams, before joining Jones & Laughlin, had been New York manager of Tokheim Oil Tank & Pump Co. for about 6 years.

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WANTED proven shallow gas or oil land. Immediate drilling, describe fully or no answer. 8235 Marmont Lane, Hollywood, California.

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WANTED Expert Bookkeeper for Drilling and producing company, prefer one familiar with this line of work. Sober, industrious, and willing to put in long hours. State age, experience and salary expected. Address Box 1174, Monahans, Texas.

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Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgement is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times		1 time	2 times	3 times	4 times
3 Lines	$1.05	$1.80	$2.55	$3.30	7 Lines	$2.45	$4.20	$5.95	$7.70
4 Lines	1.40	2.40	3.40	4.40	8 Lines	2.80	4.80	6.80	8.80
5 Lines	1.75	3.00	4.25	5.50	9 Lines	3.15	5.40	7.65	9.90
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1 Inch	52 times	3.50 per inch

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We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL

Tulsa, Oklahoma

WANTED TO BUY—STORAGE TANKS—REFINERY EQUIPMENT

We are in market for 55,000 bbl. and 80,000 bbl. Tanks. Also complete refineries and equipment or any surplus material you may have—Send us your listings.

WIRE PHONE WRITE

SONKEN-GALAMBA SUPPLY COMPANY

W. C. Berry or H. J. Galamba
Riverview at Second, Kansas City, Kansas

Robt W. Duden
2100 S. Union, Tulsa, Okla.

"Motorist Safety" says LUBRICATING GAS-O-LINE

AND SAVE

3 to 6c on GASOLINE. 25 to 40% Motor Expense. Original and Genuine lubricating Anti-Knock Additive

Mixture makes cheap GASOLINE good, and high-test Gasoline better, or highest powered Gasoline on American Market. Prove it for yourself. Introductory Delivered Price 90c on $2.50 package. Responsible Dealers Wanted.

LUBRICATING GASOLINE CO., HOUSTON, TEXAS

TWO 240 H.P., 180 R.P.M., Type A, Busch-Sulzer Diesel engines, connected in tandem by a clutch, quill shaft and sheave. One engine has a belt driven 187 K.W., 220V., 2 phase A.C. generator, all in good operating condition, and can be used separately. STANARD-TILTON MILLING COMPANY—Dallas, Texas.

FOR SALE: Bartlesville Warehouse—3300' New & 2600' used 1½" 2.731# Butt Weld Reading Wrot Iron Tubing. I.T.I.O. Company, Bartlesville, Oklahoma.

25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine-Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air compressor. Six-inch Oster Pipe Threading Machine. Also large stock of lathes, pipe machines, milling machines, etc. Send for our list.
Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West 2nd St. Cincinnati, Ohio

FOR SALE—Seminole, Oklahoma, warehouse steel portable building 20' x 86' x 10' and 18'. I. T. I. O. Company, Bartlesville, Oklahoma.

WE buy and sell machine shop equip't. Write Barrett Machinery Company, Box 4516, Oklahoma City, Okla., for stock list.

FOR SALE: O. C. Whse.—6700 Ft. 2" 10 Thd. 4.6# used insert seamless tubing C-45—I.T.I.O. Co., Bartlesville, Okla.

1—26' x 190' x 10' All steel sectional building, good condition.
4—All steel sectional T-shape hangars 44' span. For information call, 3-8553 Tulsa, 2-5196 Oklahoma City, Capital 2825 Houston.

FOR SALE—Brown Recording Pyrometer, double dial, indicating and recording. Range 75-F 800 F, 30 day chart, Warren 110 volt electric clock. Warner-Lewis Co., Tulsa, Oklahoma.

FOR SALE: Oklahoma City Warehouse—4600' new & used 1½" 11½ Thd. 2.75# Regular C-45 S.S. Tubing. I.T.I.O. Company, Bartlesville, Oklahoma.

FOR SALE

10,000 Ft. 7", 24# seamless casing, once run
5,000 Ft. 7", 26# seamless casing, once run
10,000 Ft. 2½" seamless tubing, used for flowing wells only
10,000 Ft. 8" line pipe
10,000 Ft. 6" line pipe
10,000 Ft. 2½" line pipe
Also the above is threaded and collared, strictly No. 1, located in Shreveport, Louisiana.
We also have 30,000 Ft. of 6" screw line pipe in Oklahoma.
Wire, Write Or Phone for Prices

Louisiana Iron & Supply Co.
Shreveport, Louisiana

FOR RENT: At Oklahoma City, new 7,000' string 3½" O.D. 13.3# seamless left hand fishing drill pipe with tool joints. I. T. I. O., Bartlesville, Okla.

FOR SALE: Orifice and Positive Gas Meters. GEO. R. MILNER, Okmulgee, Oklahoma.

ONLY $22.50 NET TON!
(Carload Quantities)

Tubes, Steel Condenser, Used 150 tons, 5" O. D. ⅛" x ½" walls.

Other Pipe, Flues & Tubes also available.

IRON & STEEL PRODUCTS, INC.
13412 S. Brainard Avenue,
Chicago, Illinois.

"Anything containing IRON or STEEL"

FOR SALE—$80,000.00 Rotary Rig complete. 10-in. Emsco Unit, 125-350 Boilers, etc. Practically new. Bargain. Roberts Bros., Box 1726, Houston, Texas.

FOR SALE—At Bartlesville, 10-20 McCormick Deering tractor with Shaffer front end senior Bearcat Winch; at Oklahoma City, 1—Muskogee Model "B" Skid type well service machine with PA-100 International Motor. I.T.I.O. Company, Bartlesville, Oklahoma.

ELECTRIC Welders—Lincoln Arc, rebuilt, gasoline engine driven; capacities 200, 300 and 400 amp.; low prices.
FUNKHOUSER EQUIPMENT CO.,
2425 Jefferson St., Kansas City, Mo.

FOR SALE: Bartlesville Warehouse—7500' 3" 7.50# 11½ Thd. used lapweld regular tubing. I.T.I.O. Co., Bartlesville, Okla.

Gasoline Plant Equipment For Sale

1—5' x 16' S.W. Evaporator 40# W.P.
1—9' x 4½' Graver Water Filter.
1—8' x 40' Tulsa Type Bubble Tower.
1—49" x 12' S.W. Reflex Tower.
2—96" x 34' S.W. Bubble Towers.
2—7 x 7 Graver Water Softeners.
1—30' x 40' x 12' Sectional Steel Bldg.
1—4 x 6 Fairbanks Morse Duplex Pump.
Clark, Bessemer, Ingersoll-Rand, Miller Compressor Cylinders from 6" to 26".
Located at our Seminole, Okla. Store.

Nolan Sales Corporation, Tulsa, Okla.

POWER UNITS—ELECTRIC MOTORS
Priced low for quick sale
200 HP Model L-1 Cummins Diesel
165 HP 6-LB-1742 Buda Diesel
160 HP WOK Waukesha gas or gasoline
135 HP JH-6 Buda gas or gasoline
140 HP 4 cylinder Marine Diesel
100 HP 3 cylinder Tips Diesel
75 HP Fairbanks-Morse semi-Diesel
25 HP Fairbanks-Morse semi-Diesel
MOTORS: 2200 volt, 900 RPM:
100 HP Fairbanks-Morse B.B.;
75 HP General Electric;
60 HP Fairbanks-Morse B.B.;
MOTORS: 440 volts, 900 RPM:
100 HP Fairbanks-Morse; 100 HP General Electric; Two—20 HP 220 volt, 1750 RPM; 15 HP 220 volt, 1200 RPM; 10 HP 1200 RPM; 10 HP 1800 RPM.
Write, wire or telephone:
R. B. STRICKLAND & CO., WACO, TEX.

FOR SALE: 7 Ft. x 20 Ft. Butane welded storage tanks 125# WP, capacity 6000 gallons. I.T.I.O. Co., Bartlesville, Okla.

FOR SALE AT BARGAIN PRICES for cash:
In Wyoming:
1—#4 Special Buckeye Ditcher.
1—110-gallon Tar Kettle.
In KMA Texas field:
1—250-gallon Tar Kettle.
1—#36 Buckeye Ditcher.
At Odessa, Texas:
1—#4 Buckeye Ditcher.
1—Ten-Twenty McCormick Tractor with live boom.
At Oklahoma City:
1—#35 Buckeye Ditcher.
1—250-gallon Tar Kettle.
1—McCormick Deering Tractor 6-40 with live boom.
1—110-Ft. Air Compressor.
Contact
LEE CURRY, 302 Key Bldg., Phone 7-7636 Oklahoma City, Okla.

Canadian Fields

By VICTOR LAURISTON

CHATHAM, Ont., Jan. 20.—In Section 5-19-2w5, West Central Turner Valley, Royalite Oil Co.'s No. 45, LSD 14, finished 426 ft. in the Madison limestone at 7,486 ft. depth showed flush production around 1,500 bbl. a day after acidizing with 3,000 gal. Official tests showed restricted flow through 1-in. choke of 1,279 bbl. a day. Allowable was set at 210 bbl., making it one of the major wells in the field. It extends the area of large producers north and west of Vulcan-Brown's No. 1, and indicates the likelihood of large wells on the western part of the Southwest Petroleum holdings in Section 8-19-2w5, and the east part of Royalite holdings in Section 7-19-2w5.

In Section 25-19-2w5, Argus Royalties' No. 1, LSD 14, the most northerly producer in the west-central area, is continuing acid treatments to break down the tight limestone. Improvement in production is expected to justify an increase in allowable from 100 to 150 bbl.

In section 29-18-2w5, Command Oils' No. 2, LSD 11, finished at 8,184 ft., 486 ft. in the lime, developed initial flush production of 3,000 bbl. a day after treatment with around 9,500 gal. of acid.

In Section 28-20-3w5, North Turner Valley, Home Oil Co.'s No. 4, LSD 9, finished at 8,332 ft., about 487 ft. in the limestone. It was given a light shot of acid and blew into production with a strong gas flow and heavy pressure. It may prove larger than Home's No. 2 Millarville, for nearly a year the largest producer in the field. It is about a mile west and north of Royalite Oil Co.'s No. 35 and about the same distance south and east of Home's No. 2.

In Section 17-18-2w5, Royalite Oil Co.'s No. 46, LSD 2, finished 440 ft. in the Madison at 7,994 ft. depth, is testing for allowable.

New Tests

Two new tests have been announced for the west-central area, In Section 18-19-2w5, Okalta Oil Co.'s No. 9 has been spotted in LSD 13, about a half mile northwest of Davies Petroleum' No. 5, and just east of Arrow's No. 1

In Section 5-19-2w5, Royalite Oil Co.'s No. 51 has been located in LSD 13, immediately west of Royalite's No. 45 producer, and east of East Crest Oil Co.'s No. 6 location.

In Section 29-18-2w5, Commoil's No. 3, LSD 13, has spudded. Location is south of Royalite's No. 42 and north of Royal Canadian's No. 3, both large producers.

In Section 17-18-2w5, Royalite Oil Co.'s No. 50, LSD 7, is below 705 ft.

North of the proven North Turner Valley field, Alberta Oil Incomes' No. 1, LSD 4, Section 34-20-3w5, is in the Blairmore formation below 3,953 ft. No. 2, LSD 4, Section 4-21-3w5, is below 2,068 ft. and apparently entering the same formation. Both tests got the Blairmore considerably higher than Home's No. 2 Millarville, a mile west and a little north of No. 1. Alberta Oil Incomes' No. 2 is some 4,200 ft. north and west of the big Home well, and is expected to throw considerable light on the possibilities of a northwesterly extension of the North Turner Valley crude area.

In the Pincher Creek area, Alliance Royalties' No. 2, LSD 14, Section 11-6-2w5, is working on cellar.

CRUDE-OIL PRICES IN REPRESENTATIVE FIELDS

Complete crude-price schedules are now being published in the first issue of each month. The last complete schedule was published in the January 4 issue. All changes in crude-oil-price schedules will be published completely in the first issues following the announcement of the changes. Following are representative crude-price schedules in barrels (42 gal.):

East Texas	$1.10
Conroe	1.27
Tepetate, Louisiana	1.03
Smackover, Arkansas, heavy	.73
Illinois basin	1.05
Pecos County, Texas	.78
Lance Creek, Wyoming	.77
Bradford, Pennsylvania	2.75

Gravity Schedules

Top prices include all gravities above grades designated, and low prices include all gravities below grades designated:

	Signal Hill, California	Oklahoma, Kansas	Gulf Coast Texas
14-14.9	$0.80	....	....
15-15.9	.80	....	....
16-16.9	.80	....	....
17-17.9	.80	....	....
18-18.9	.80	....	....
19-19.9	.82	....	$0.86
20-20.9	.85	$0.70	.88
21-21.9	.88	.72	.90
22-22.9	.92	.74	.92
23-23.9	.95	.76	.94
24-24.9	.99	.78	.96
25-25.9	1.03	.80	.98
26-26.9	1.06	.82	1.00
27-27.9	1.10	.84	1.02
28-28.9	1.14	.86	1.04
29-29.9	1.17	.88	1.06
30-30.9	1.21	.90	1.08
31-31.9	....	.92	1.10
32-32.9	....	.94	1.12
33-33.9	....	.96	1.14
34-34.9	....	.98	1.16
35-35.9	....	1.00	1.18
36-36.9	....	1.02	1.20
37-37.9	....	1.04	1.22
38-38.9	....	1.06	1.24
39-39.9	....	1.08	1.26
40-40.9	....	1.10	1.28

Crude-Oil Price Changes

Shell Oil Co., Inc., effective January 12 posted a price of $1 per barrel for crude produced in the Happytown field in St. Martin Parish, Louisiana.

Sinclair Prairie Oil Marketing Co., effective January 20 posted a flat price of $1.08 per barrel in the Long Lake field in eastern Texas. It is the company's first posting in the field and does not change the price already posted by Gulf Refining Co.

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